

# WESTINGHOUSE

*swings into the 1938 Program of  
1000 PROVING KITCHENS!*

Dealers everywhere will profit by  
localized **PERSONAL PROOF**

A Proving Kitchen in every community! Strong "Personal Proof" for every Westinghouse dealer! Here's your opportunity to profit from a *tested and proved* selling program, that already has *doubled* and *tripled* sales for many dealers.

It's *brand new!* It's *hot!* And *only* Westinghouse offers it! You gain valuable publicity and local interest. Your "local proof" confirms sensational performance records the world over. And... every local Hostess becomes the source of *new leads* — helps you *close* many tough sales. You *can't miss* with this program!

## Kitchen-proved Savings

LIKE THESE WILL SWING BUYERS TO WESTINGHOUSE

Average "year-round results" from 102 Home Proving Kitchens:

Daily current consumption . . . . .	4/5 KWH	Meat compartment temperature . . . . .	39° F.
Daily operating cost (at 3c rate) . . . . .	2½c	Food compartment temperature . . . . .	42.5° F.
Running time of mechanism . . . . .	15½%	Freezing time, for ice cubes . . . . .	56 min.
(10 hours out of 12 it uses NO CURRENT AT ALL)		Freezing time, for desserts . . . . .	65 min.
Milk compartment temperature . . . . .	40° F.	Saving over cost of previous refrigeration (per week) . . . . .	62c
		Cash savings on food alone . . . . . (per week) . . . . .	\$2.10

PROFIT FROM  
**PERSONAL  
PROOF**  
IN 1938

### SELL ON PERSONAL PROOF FROM YOUR OWN PROVING KITCHENS!

Cash in on this powerful program! The biggest thing in years! Send today for full particulars of the "1,000 Proving Kitchens" Plan! Fill out and mail the coupon below, or write your Westinghouse Refrigerator Distributor direct.

*SWING AHEAD  
with the new*

**Westinghouse**  
*Kitchen-proved* **REFRIGERATOR**



### MAIL THIS COUPON TODAY!

Westinghouse Electric & Mfg. Co.,  
Department 803  
Mansfield, Ohio.

Please have a representative give us complete details of your new "1,000 Proving Kitchens" Program. We are interested in setting up a local Proving Kitchen.  We (*are* *not*) now handling Westinghouse Refrigerators.

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# REFRIGERATION NEWS

Trade Mark Registered U. S. Patent Office. Established 1926 as Electric Refrigeration News  
Member Audit Bureau of Circulations. Member Associated Business Papers.

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5 P.M.

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TWENTY CENTS PER COPY

## COPELAND CORP. SOLD TO THOMPSON GROUP

### Leonard Tests 1938 Line in 609 Kitchens All Over U.S.

#### New Hermetically Sealed Reciprocating Condensing Unit Used in Models

DETROIT—Tested by 609 women in every state during the summer of 1937, Leonard's 11-model line of household electric refrigerators for 1938, featured by a new sealed condensing unit, was introduced to more than 400 distributors, sales managers, and wholesale men in their annual convention Dec. 3 and 4.

Using the refrigerator in their kitchens for several weeks last summer, the 609 women in 48 states kept daily records of temperatures, both inside the cabinets and in their kitchens, and also kept cost records of how much it cost to operate their refrigerator, and what it saved them.

The suggested Zone 1 retail installed prices, including \$5.00 for "Four-Year Protection Plan," are as follows:

DELUXE PORCELAIN MODELS		
P5-38	.....	\$206.95
P6-38	.....	236.95
P7-38	.....	261.95

DELUXE PERMALAIN MODELS		
LA-38	.....	\$142.95
LB-38	.....	187.45
LE-38	.....	217.45
LT-38	.....	236.95

'SPECIAL' PERMALAIN MODELS		
L3-38	.....	\$118.95
LS-38	.....	162.95
LS-38	.....	182.95
LT-38	.....	202.95

Heading the list of new Leonard features is the new sealed "Glacier" unit, a hermetically sealed reciprocating-type compressor encased in a steel dome. The unit operates in a bath of oil, and is cooled by a forced-draft system.

A top convenience feature of the line is the "Ice Popper" tray, an all-

(Continued on Page 14, Column 1)

### New Leonard Condensing Unit



The new Leonard hermetically sealed condensing unit is the subject of close scrutinization by R. A. Tulp (kneeling) and Victor E. Allen of the Graybar Electric Co., Los Angeles.

#### Apex Line Will Feature 2 'Air-Conditioned' Models in 1938

CLEVELAND—Twelve models in three new lines of household electric refrigerators are included in Apex Rotarex Corp.'s 1938 series, which is being shown to distributors and dealers in preview meetings here and in New York City.

Distinguishing the 1938 Apex line are two "Air Conditioned" models of 6.1 and 7.1-cu. ft. storage capacities; and three models in a "Two Zone" series, with a separate storage

(Concluded on Page 24, Column 1)

#### Hertzler & Barnum Get New Positions at York

YORK, Pa.—John R. Hertzler, manager of the air-conditioning division of York Ice Machinery Corp., has been appointed to the newly created position of general refrigeration and air-conditioning representative, and Willis E. Barnum, of

(Concluded on Page 20, Column 5)

#### Refrigerated Fly-Catcher Patented in France

PARIS, France—Refrigeration made its entry into the fly-catching business here when a local inventor obtained a patent on a machine for "catching and preserving flies."

This contraption sucks in the insects in large quantities and then chills them. The flies then are packed in huge cans and sold to frog breeders as frog food, and to insecticide manufacturers as victims upon which to test the potency of their products.

#### Gleason, Curtis & Buschmann Are Firm Members

SIDNEY, Ohio—Purchase of the controlling interest in the Copeland Refrigeration Corp. from Dallas E. Winslow was negotiated here Saturday morning by a group including Harry E. Thompson, Frank J. Gleason, Charles L. Curtis, and Oskar H. Buschmann.

This quartet of industry pioneers, which began working together many years ago with Universal Cooler, leaves the Brunner Mfg. Co. to take over Copeland from Mr. Winslow and his associates, who have been operating this long-established refrigeration firm for the last four years.

Mr. Thompson will become president and general manager of Copeland, Mr. Gleason will be vice president in charge of sales, Mr. Curtis is slated to be vice president in charge of production, and Mr. Buschmann is the new chief engineer.

W. G. von Meyer, sales manager, and E. C. Burr, treasurer of the company under Winslow, will be retained in the new organization, as well as other key men.

Copeland Refrigeration Corp. has

(Concluded on Page 2, Column 1)

#### Household Sales Total 2,343,000 in 10 Mos.

DETROIT—Ten-month world sales of household electric refrigerators by manufacturers to distributor outlets reached a new all-time high this year as October sales of 77,900 units swelled the 10-month total to 2,343,400, according to estimates by the NEWS.

October sales by manufacturers this year were 34% above sales for October, 1936. Unit sales for the first 10 months of the year exceeded last year's 10-month figure of 2,003,700, a new record at the time, by nearly

(Concluded on Page 2, Column 5)

#### H. C. Kellogg, President of Temprite Products Dies

DETROIT—Herbert C. Kellogg, president of Temprite Products Corp., died at his home here Dec. 3. He was 49 years old.

In 1929 Mr. Kellogg founded the Liquid Cooler Corp., which later became the Temprite company, and was president of the organization from its formation until his death.

He was born in Wethersfield, Ill., in 1888, and began his career in 1910

(Concluded on Page 24, Column 3)

#### Pleasantaire Buys Assets Of International Corp.

WASHINGTON, D. C.—Pleasantaire Corp., with headquarters in this city, has purchased the assets of International Air Conditioning Corp. of New York City with the approval of the Court that had taken over the direction of International's affairs since that firm had become insolvent, according to announcement made by

(Concluded on Page 24, Column 4)

#### Bundy Factory Reopens Following Strike

DETROIT, Dec. 7—Plant of the Bundy Tubing Co., closed Nov. 22 by a sit-down strike sponsored by United Automobile Workers of America, was operating today at near normal capacity, according to G. D. Baker, sales manager.

Partial production in the plant was resumed Thursday, Dec. 2.

#### Sealed Condensing Unit Adopted For First Time by Kelvinator

#### Crosley Retail Prices For Zone 1 Start At \$114.50

CINCINNATI—Zone I retail prices of the 1938 line of Crosley Shelvador electric refrigerators have been announced as follows:

##### STANDARD SERIES

Model	Size	Price
KB5-30	3.0 cu. ft.	\$114.50
KB5-31	3.16 cu. ft.	117.50
KB5-36	3.6 cu. ft.	129.50
KB5-43	4.3 cu. ft.	142.50
KB5-50	5.07 cu. ft.	162.50
KB5-60	6.0 cu. ft.	182.50
KB5-71	7.1 cu. ft.	202.00

##### DELUXE SERIES

KL5-43	4.3 cu. ft.	154.50
KL5-50	5.03 cu. ft.	187.00
KL5-61	6.1 cu. ft.	217.00
KL5-71	7.1 cu. ft.	236.50

Prices include a \$5 charge for the company's five-year protection plan.

#### Johnson Moves to New Assembly Plant

GALESBURG, Ill.—A new 250 x 115-ft. assembly plant and warehouse has been completed here by Johnson Motor Co. in order to relieve further the overburdened facilities of the company's main plant at Waukegan, Ill.

This unit is another link in a building program which also has resulted in a new office building, and adequate quarters for the engineering, service, sales, production, assembly, and inspection departments.

Company executives whose headquarters have been moved to the

(Concluded on Page 2, Column 4)

#### Dr. Carrel Says Fresh Air Does Not Lengthen Life

NEW YORK CITY—Fresh air and sunshine and plenty of exercise have no true effect upon lengthening man's life span, declared Dr. Alexis Carrel in a recent report to the Association of Life Insurance Presidents.

Dr. Carrel, Nobel prize winner, said that while fresh air and sunshine "may be" beneficial to health, they have no direct effect upon longevity.

Sales for the first 10 months of the year total \$77,091,009, a large increase over the \$42,484,811 reported for the corresponding period of last year. The total reported so far for this year also is approximately 50% greater than that of the whole year of 1936, which reached \$49,942,301.

#### Present at Kelvinator Preview



They are the "big guns" of the Nash-Kelvinator organization. Board Chairman Charles W. Nash and President George W. Mason joined with Kelvinator distributors in viewing the 1938 products for the first time at a recent private preview in Detroit.

## Thompson, Gleason, Curtis & Buschmann Buy Copeland Refrigeration Corp. From Dallas E. Winslow

(Concluded from Page 1, Column 3) purchased the land, real estate, and buildings which it now occupies at Sidney, it was announced. This property had formerly been leased.

It is understood that exclusive rights to the manufacture of Zero-zone and Trupar refrigerators and condensing units were included in the purchase.

According to Mr. Thompson, the present distributing organization will be left intact, although Mr. Gleason will institute a drive to expand its coverage of the national market.

### HEADQUARTERS IN SIDNEY

The new Copeland executives will move at once to Sidney, where manufacturing activities were recently removed from Detroit. Mr. Curtis already has the commercial lines in production in this new plant, and expects to have the household lines running within a week or so.

During the current year Copeland sold 8,600 household refrigerators. First job of the new executives, according to Mr. Gleason, will be to expand household unit sales. For several years Copeland's biggest business has been in commercial equipment, and Mr. Gleason plans to balance up the two divisions.

Baldwin & Strachan, Inc., of Buffalo, will handle Copeland advertising. William M. Baldwin, president, is planning to institute a campaign for the promotion of Copeland household refrigeration sales at once.

Having been successful both at Universal Cooler and Brunner in helping build small refrigeration manufacturing concerns into large ones, the Thompson group now take over their own company with every intention and hope of doing for themselves what they previously have done for others.

Mr. Thompson's career in the refrigeration business parallels that of the industry, for he was identified

with the Kelvinator Corp. as early as 1919, at which time Edmund J. Copeland was president and general manager.

Shortly after Mr. Copeland severed his connection (in 1921) with Kelvinator to organize the Copeland company, Mr. Thompson also left to form the Universal Cooler Corp. As its chief engineer, Mr. Thompson took an active part in the development and expansion of Universal.

In 1934 Mr. Thompson left Universal Cooler to join the Airtemp Division of the Chrysler Corp. as consulting engineer. In 1935 he became chief engineer and general manager of the Brunner Mfg. Co. of Utica, N. Y., a producer of commercial condensing units.

### DEVELOPED CONTROL

Mr. Thompson's contributions to the science of electric refrigeration include the development of thermostatic control devices which are now almost universally used.

The business careers of Mr. Gleason, Mr. Buschmann, and Mr. Curtis are closely associated with that of Mr. Thompson, for all three have held executive positions in the various companies with which Mr. Thompson has been identified.

After serving as a public accountant with Price, Waterhouse & Co.'s Detroit office from 1919 to 1921, Mr. Gleason spent six years with the American Motor Body Corp. of Detroit and Philadelphia.

In 1927 he joined the Universal Cooler Corp. as comptroller, and later became secretary and assistant treasurer. In 1932 he became assistant to the late G. M. Johnston, who was president at that time.

Mr. Gleason became executive secretary of the Refrigeration Supplies & Parts Manufacturers Association and also executive secretary of the National Refrigeration Supply Jobbers Association in 1936.

In July, 1937, he resigned this job

## Buying a Company Is a Serious Business



Harry E. Thompson signs a document to conclude the purchase of the Copeland Refrigeration Corp. Seated around the table are E. C. Burr; Dallas E. Winslow, who formerly

controlled the company; Mr. Thompson; and Charles L. Curtis, new vice president in charge of production. Standing (left to right) are Oskar H. Buschmann, chief engineer; W. G. von

Meyer, a Winslow man who will be retained by the new operating group; F. B. McKaig, former treasurer; and Frank J. Gleason, new vice president in charge of sales.

## Refrigeration Sales Gain in October

(Concluded from Page 1, Column 3) 17%, and the total estimated sales for 1936 (2,223,000 units) by 5%.

Sales reported to the Household Refrigeration Section of the Refrigeration Division of National Electrical Manufacturers Association by 15 member companies during October totaled 72,490 units, compared to 53,191 for October, 1936.

Sales by states showed New York in the lead with 11,025 units for the month, while Illinois took second place with 6,631, and Michigan ranked third with 5,269.

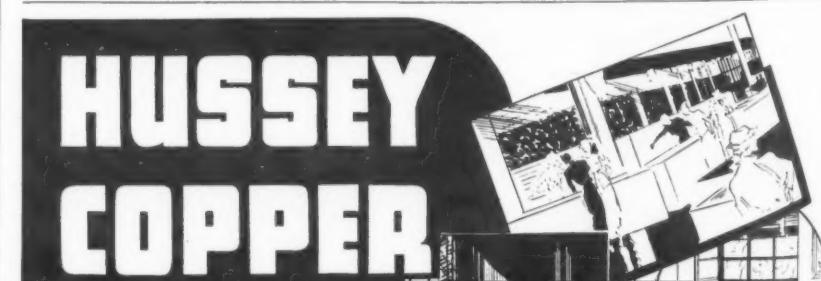
That turbulent conditions abroad have affected export shipments is indicated by the fact that Nema companies reported export of only 9,379 units (including shipments to Canada) during October of this year, compared to 12,805 units exported during October, 1936.

Commercial sales figures, however, told quite another story. Nema commercial sales for October (as reported by 14 member companies of the association's commercial refrigeration section) were only 6,944, compared to 9,365 for the same month last year. Nema commercial sales for October, 1935, totaled 6,350.

Pressure water cooler sales for the month totaled 307 units, ice cream cabinet sales totaled 480, sales of bottled beverage coolers reached 493, and self-contained air-conditioner sales totaled 38.

## Johnson Motor Moves to New Assembly Plant

(Concluded from Page 1, Column 4) Galesburg plant include: J. F. Furry, chief engineer in charge of engineering, development, and inspection; C. A. Thomson, refrigeration sales manager; C. J. Geske, service manager; E. L. Bourdon, head of accounting and office management. The organization here will be augmented with local personnel.



### FOR ALL TYPES OF AIR CONDITIONING EQUIPMENT

Modern air-conditioning installations demand the highest quality copper. That is why so many manufacturers prefer HUSSEY COPPER—a standard quality specification in every industry for more than 89 years.

HUSSEY COPPER Service is as near as your telephone—a nationwide service backed by seven conveniently located Hussey Warehouses with complete stocks of copper products for air conditioning applications of every description including Housings, Air Washers, Blowers, Coils, Ducts, etc.

Write for the Hussey Catalog—check full of practical information on copper as applied to air-conditioning applications.

### C. G. HUSSEY & CO.

A Division of Copper Range Co.  
Rolling Mills and General Offices—  
PITTSBURGH, PA.

Warehouses in the Principal Cities

Representative  
Hussey Copper  
Products

- SHEETS, STRIPS  
AND ROLLS
- ROD
- TUBING

- NAILS AND RIVETS

- PREFABRICATED  
ROOFING  
MATERIALS OF ALL  
KINDS

THIS  
BOOK  
tells..  
  
HOW  
to SELECT the RIGHT MOTOR

This New 24-page book will be of real assistance to you... Here is presented in helpful form information concerning the electrical characteristics of all types of Fractional Horse Power Motors—and suggestions as to how they can be most effectively applied to meet the requirements of motor-driven machinery and appliances operating in normal or abnormal surroundings... Fully illustrated... Send for your copy, if you have not received it... ASK FOR BULLETIN 1039-B...

CENTURY ELECTRIC COMPANY  
1806 Pine Street • • • St. Louis, Mo.

Offices and Stock Points in Principal Cities

UP TO 600 HORSE POWER



Copper HUSSEY Brass

Floor

THESE  
Frigidair  
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## Flood of Dealer Orders—Big Spurt in Christmas Sales—Greet Ahead-of-Time Announcement of Sensational New 1938 Line of Frigidaire Refrigerators and Ranges

### THESE OUTSTANDING PRODUCTS MAKE THE FRIGIDAIRE FRANCHISE MORE VALUABLE THAN EVER!

Frigidaire Dealers everywhere are giving a rousing reception to the newest Frigidaire sensations! Enthusiastically acclaiming the greatest refrigerator in all Frigidaire history—the new 1938 Frigidaire with the new Silent Meter-Miser, the new "Double-Easy" Quickube Trays, and a host of other "selling" features, all exclusive with Frigidaire! Hailing the great new electric cookery sensation—the new Frigidaire Electric Range, offering . . . in every model, in every price class . . . more advanced cooking and baking features than any other 2 ranges combined! And getting set to make new profit-history with the outstanding line of new Frigidaire Electric Washers, Ironers and Water Heaters.

Announced early, to enable dealers to get off

to a flying start during the Christmas buying season, the new line of Frigidaire products makes the Frigidaire Franchise more valuable than ever, offers Frigidaire outlets amazing opportunities. For, in addition to having products of marked superiority, with dozens of spectacular sales features, they will enjoy the *double advantage* of having behind them Sales Strategy that is typically Frigidaire's. The same sort of hard-hitting advertising, result-getting promotions that have made the Frigidaire refrigerator the fastest-selling in America!

Frigidaire men are even now on their way again! To shatter refrigerator sales records once more . . . and set new selling records in other appliance fields! Watch them prove, in 1938, that the Frigidaire Franchise is more valuable than ever!

FRIGIDAIRE DIVISION  
General Motors Sales Corporation, Dayton, Ohio



*You'll do better than ever with Frigidaire in 1938!*

## SPECIALTY SELLING IDEAS

### 'Family' Atmosphere Eliminates Turnover In Sales Force on Appliance Division Of Decatur Department Store

DETROIT—"The organization that eats together, works together, laughs together, cries together, and plays together, is on the way to success," says R. R. Crum, manager of the Leonard refrigeration department of Linn & Scruggs, Decatur, Ill., department store.

Mr. Crum's department operates like one big family and progress is made on the basis of mutual confidence. In proof of his position, Mr. Crum cites the fact that there has been literally no turnover in his organization and several salesmen have been in the employ of the company from 10 to 12 years.

During this period no salesman has ever been behind on a drawing account, Mr. Crum declares.

Keeping the morale of the retail men high has pushed sales up to

The wholesale business of the refrigerator is handled by R. R. Thompson, who uses his 10 years of retail selling experience to help his dealers. By actually going out and closing retail sales for the dealers, Mr. Thompson keeps them making money and runs up a volume of sales for his department.

Linn & Scruggs protects dealers against sales made by the Decatur retail men, and Mr. Thompson feels that this protection builds dealer confidence and makes a close knit organization.

L. M. Hoffer, 60-year-old retail salesman for the Linn & Scruggs store believes in "using the user." Mr. Hoffer gives his customers \$2.50 out of his own commissions for tips resulting in the sale of Leonards.

A large personal following which is the result of 12 years of hard

### Leonard Distributors Describe Some of Their Business Methods

During the Leonard convention in Detroit last week the editorial staff of AIR CONDITIONING AND REFRIGERATION NEWS had an opportunity to interview some of the Leonard distributors about various phases of their business. Three of the interviews are published on this page.

approximately 1,500 units in 1937, which is 15 times greater than the annual volume when Mr. Crum joined the organization several years ago.

To prove to his department that the refrigeration business is a year-around affair, Mr. Crum released a full-page newspaper advertisement in February, 1937, when the temperature outside was 12° below zero. This advertisement was made up of white letters on a black background with no pictures or illustrations, offering prior year models at a saving, but without mentioning price.

On the following day 17 Decatur people braved the bitter weather to come in and purchase refrigerators, and by Saturday evening a total of 25 sales had been turned in by the men.

work, keeps him advised of potential buyers of refrigerators. One of the first men in the entire Leonard field organization to make his quota, Mr. Hoffer crossed the \$10,000 mark May 1, 1937, to win the Leonard Crest Club Award.

Two other members of the retail organization, Oran Hill and Everett Hupp, have made the Leonard Crest Club both in 1936 and in 1937.

Orders for Leonard refrigerators are sent to R. R. Ludington, assistant sales manager of the Leonard division of Nash-Kelvinator Corp., by R. R. Roland, who is in charge of stock. As the refrigerators are sold under the supervision of R. R. Crum and R. R. Thompson, Mr. Crum feels that this "double R" combination is unbeatable.

### Hill Stresses Need Of First Selling Dealer's Salesmen

DETROIT—Sell the dealer's salesman, and he'll not only be likely to persuade the dealer to take on the line, but the salesman will get behind the merchandise and "push" it if the dealer does decide to handle it.

So says H. H. Hill of the Graybar Electric Co., Phoenix, Ariz., distributor for Leonard electric refrigerators in the state of Arizona.

When Graybar in Phoenix can get the dealer's salesman or salesmen into its showroom and convince them that the merchandise being demonstrated to them is something they can sell, the big part of the distributor's job is done, Mr. Hill explains.

The territory covered by Graybar in Phoenix is extensive in space, but sparse in population. Outside of Phoenix and Tucson, the population in the other towns in the state ranges from 6,000 persons downward. In some cases Mr. Hill has a trip of close to 156 miles between towns in which he has dealers.

In such small towns, says Mr. Hill, the electrical contractor has proved to be the best type of outlet for refrigerators. The "electrical contractor" in these Arizona towns is not only the man who does the wiring; he is also considered "the authority" on electrical appliances.

The contractor can't have a very large operation, naturally; a typical set-up is one in which the contractor is a technical man who hires a salesman.

The important thing about the contractor setup, says Mr. Hill, is that they do "outside" selling. The contractor and his helpers are constantly out calling upon customers and users, and therefore they do the most active selling job.

These dealers in the small towns are anxious to get promotion helps, but the distributor must remember that his promotion must fit the market. Elaborate schemes won't work, but simple, self-explanatory promotion is appreciated, said Mr. Hill.

In Phoenix the three best dealers are a furniture store, a hardware firm, and a straight electrical appliance dealer. The one thing common to all three dealers, says Mr. Hill, is the fact that they all use "specialty selling methods," employing good-sized staffs of outside salesmen, and carrying on active promotion. Newspaper advertising is used extensively by these three dealers.

### Commercial Credit Issues Folder on 'Economy Plan'

BALTIMORE—Commercial Credit Co. has issued a folder outlining the firm's new "Economy Purchase Plan" and listing manufacturers of gas and electrical appliances who are cooperating with the idea. The broadside is directed at public utility companies, other appliance manufacturers, distributors and dealers.

### Sweeney Tells 'Em



Reversing the old "Tell It to Sweeney" admonition, A. M. Sweeney, General Electric household refrigeration sales manager, tells a group of G-E dealers how to make profits with the G-E line in 1938.

### Wiswell Sets Up Plan for Coverage and Apportion Quotas at Start of Year

DETROIT—"When an architect starts to build a house he first makes a plan," says Les. Wiswell of the L. C. Wiswell Co., Chicago distributor, "and when we start out to market Leonard refrigerators we first make a complete plan of the territory.

"Each year a detailed analysis of the situation is made by M. A. Hammel, our sales manager, and myself. Before establishing quotas we go over the ground personally and work up a plan of operation in exactly the same way a blueprint is prepared for a new building."

The "Wiswell Plan" divides the territory into trading areas which are called "towns." In the rural districts these "towns" may consist of an entire county, but in metropolitan Chicago the city has been split up into 62 individual trading areas.

The survey shows the number of dealers that should be set up in each "town," the potential refrigeration business available to these dealers, and the number of new dealers required to close open areas.

Percentage of business required from each "town" for each month is established at the beginning of the year. To illustrate this percentage system Mr. Wiswell says that perhaps 10% of the yearly refrigeration business would be expected from the "town" in January, 15% in February, 20% in March, and 25% in April.

The total refrigeration business for the year is apportioned on a six months' basis. Other products sold by the company are scheduled on a similar basis. Before the salesman starts out in January he knows what is expected of his territory for the entire year, and how much business must be produced each month to be sure of making the yearly quota.

Six wholesale men working on a straight commission basis and paying their own expenses cover 16 counties in northern Illinois and Lake County Indiana. Salesmen who get their quota receive a bonus at the end of the year, and in addition a bonus is paid for closing an "open town," that is, for setting up a new dealer. This bonus for closing an open point serves as an added incentive to the salesmen, and helps in getting coverage.

When asked what type of dealers he found most effective, Mr. Wiswell stated that some of his best dealers have never been in the refrigeration business until he set them up to sell Leonard. His only requisites for a dealer are:

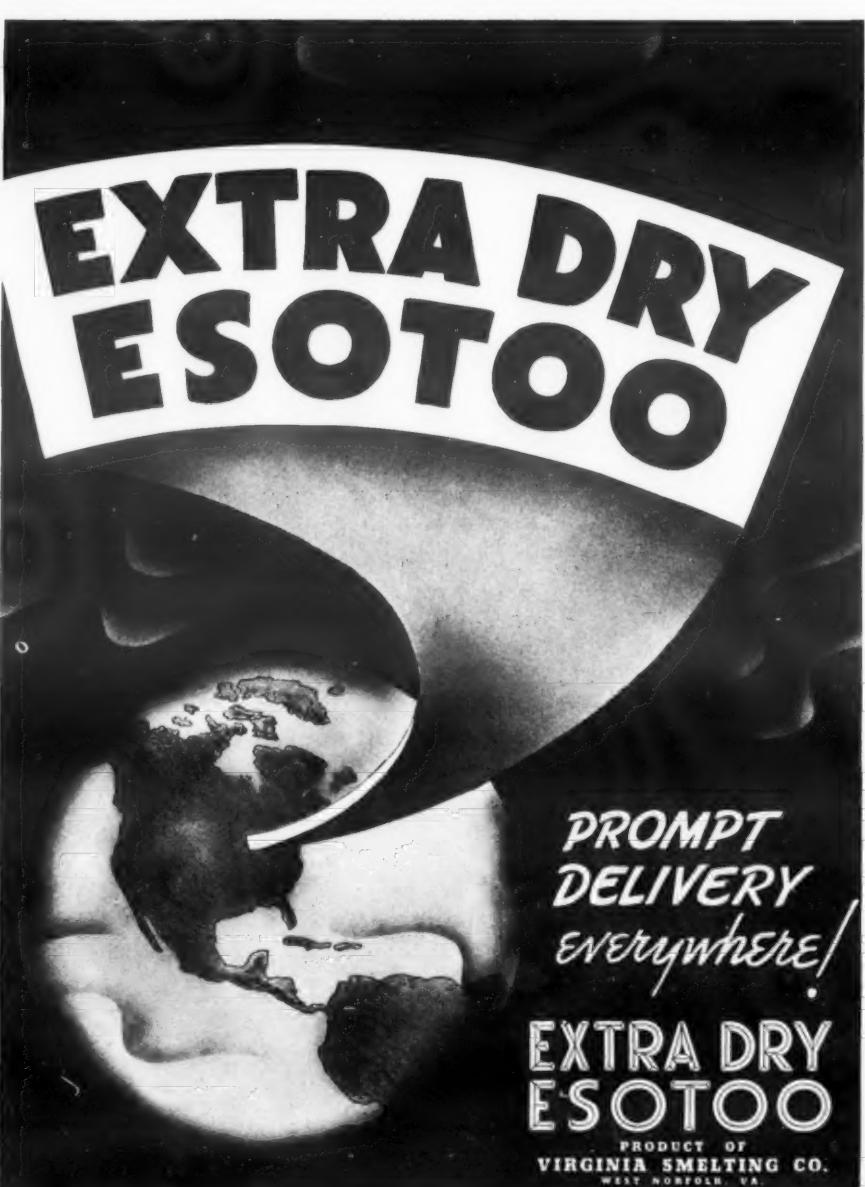
1. Ability to buy refrigerators.
2. Ability to sell refrigerators.

When a contact has been established by a salesman the prospective dealer is investigated through his local bank. By getting complete credit reports the Wiswell company escapes many of the credit difficulties that sometimes beset a large wholesale operation.

Direct mail advertising is sent to all refrigeration dealers and prospective dealer accounts in the Wiswell territory. Alert to the value of advertising and to novel means of promoting his business, Mr. Wiswell took his entire organization to the Leonard national convention at Detroit by airplane, and returned to Chicago the same way.

The L. C. Wiswell Co. does not sell at retail, but a large service and parts department is maintained. Mr. Wiswell says he has found that to keep a large dealer organization an efficient, well-operated service department is absolutely necessary.

# EXTRA DRY ESOTOO



**PROMPT DELIVERY EVERYWHERE!**

**EXTRA DRY ESOTOO**

PRODUCT OF VIRGINIA SMELTING CO.  
WEST NORFOLK, VA.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

No. 1 of a Series of Curtis Advanced Engineering Features.

### TIMKEN TAPERED ROLLER MAIN BEARINGS

Increase efficiency—thermal and mechanical due to less friction.

Take end thrust due to crankcase and seal spring pressure.

Insure longer life.

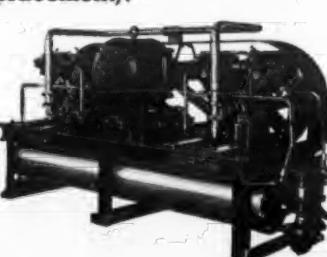
Provide for adjustment when needed (at such time plain bearings need replacement).

Yes, they are more expensive (but not to you). This is just one example of the engineering originality and extra value incorporated in Curtis Condensing Units that contributes so much to their dependable, care-free performance.

CURTIS REFRIGERATING MACHINE CO.

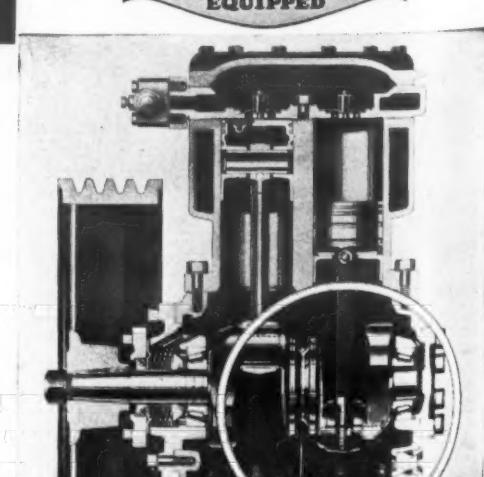
Division of Curtis Manufacturing Co.

1912 KIENLEN AVENUE



ST. LOUIS, MO.

Tapered Roller Bearings  
**TIMKEN BEARING EQUIPPED**



**CURTIS**

"Builders of Condensing Units Since 1922"

Represented in Canada by  
Canadian Curtis Refrigeration Co., Ltd.  
20 George St., Hamilton, Ont., Can.

## DISTRIBUTOR-DEALER DOINGS

### 500 Attend Exhibit Of G-E Appliances At Wichita, Kan.

WICHITA, Kan.—More than 500 dealers and salesmen attended a three-day exposition featuring the complete General Electric appliance lines for 1938 at the General Electric Supply Corp.'s new home here Nov. 27-29.

Displays were arranged with subdivisions presented in separate display rooms for the convenience of visiting dealers. The building was designed and built especially for the display and distribution of G-E appliances. M. C. Huie is Wichita manager for the company.

Hosts during the event, besides Mr. Huie, were Wil Galpin, refrigeration specialist; J. J. McKay, home laundry equipment district manager, and Jesse Lane, vacuum cleaner sales, all of St. Louis, and R. I. Seymour, sales promotion manager; O. E. Burton, of General Electric Contracts Corp.; W. L. Rasmussen, assistant plant sales manager; E. L. Weidman, small appliance specialist; H. Davis, refrigeration and sales, and H. L. Watts, commercial refrigeration, all of Kansas City; and J. M. Weir, operating manager; L. A. Howard, general sales manager, Earl Bowell, appliance sales, and Irl Pratt, credit manager, all of the Wichita branch headquarters.

### 1938 Electrolux Line Shown To Dealers in Ohio

DAYTON—Approximately 60 dealers from 21 counties attended the showing of 1938 Electrolux refrigerators held recently at Hotel Miami.

Gordon Bloom, factory regional sales manager, and Edward Grossman, assistant sales manager, staged both the showing and the sales program with the help of other factory representatives. S. M. Thomas is manager of Tovan Electric Co., Electrolux distributor here.

### Norge Dealer Makes Sales to New Apartment Building

SIOUX CITY, Iowa—Beane Plumbing Co., Norge dealer here, recently installed nine electric refrigerators, an electric washer, and an ironer in a new apartment building constructed by the Harry Holtz Construction Co. A. Y. McDonald Co. is Norge distributor in this territory, and F. Hammer is manager of the company's Sioux City branch.

### Earl Will Manage Sales for Kelvinator Distributor

BUFFALO—George B. Earl has been appointed sales manager of the Kelvinator appliance division of Appliance Wholesalers, Inc., local Kelvinator and Philco distributor, according to an announcement by W. E. Henning, president.

### Fairbanks-Morse Appoints Service Firm in Miami

MIAMI, Fla.—Airline Radio and Refrigerator Service has been appointed exclusive servicing representative in Dade county for Fairbanks-Morse radios, refrigerators, and washing machines, and for Grunow and Leonard refrigerators.

The company, owned by Percy Hitch, also is a factory authorized service agency for Crosley radios and refrigerators.

### Demery & Darby Opens Retail Branch in Vale, Idaho

VALE, Idaho—Demery & Darby, household appliance firm operating stores in Ontario and Weiser, Idaho, has opened a retail unit here under the management of Dwight Pierce. Norge refrigerators and ranges, Philco radios, and Maytag washers are among major appliances handled by the firm.

### 300 Northern Illinois Dealers at Showing of Fairbanks-Morse

CHICAGO—Approximately 300 dealers from 30 northern Illinois counties attended a preliminary showing of 1938 Fairbanks-Morse Conservator refrigerators held here Nov. 28 to Dec. 1 at Knickerbocker hotel under the auspices of Menard-Cohen, Inc., distributor in this territory.

H. B. Menard was in charge of the showing. Bob Anderson, of Indianapolis, midwest district sales manager of Fairbanks-Morse home appliance division, aided in the presentation. Mr. Anderson also participated in two other dealer showings last week. One of these was held Nov. 29 and 30 by Charles E. Turnock, Milwaukee distributor, and the other on Dec. 1 and 2 by Northern Indiana Distributing Co., South Bend, Ind.

### Anchor Lite Branch in Wheeling Opened

WHEELING, W. Va.—Anchor Lite Appliance Co., Crosley distributor in western Pennsylvania for the past five years, has opened a branch here to serve as headquarters for the additional territory recently assigned to it by Crosley Radio Corp., according to Harold W. Goldstein, general manager of the distributorship.

Thirty-four counties in southern Pennsylvania, northern West Virginia, western Maryland, and eastern Ohio comprise the new territory.

A complete stock of merchandise, as well as a display room, service department, and delivery facilities, will be maintained at the Wheeling branch, which is located in the Union Warehouse building. H. H. Marshall, Anchor Lite's eastern division manager for the past five years has been named manager of the Wheeling branch.

Crosley products handled by Anchor Lite Co. include radios, refrigerators, home laundry equipment, Xervacs, gas ranges, and Koldrink beverage coolers. The company also is distributor for coal ranges and circulating heaters.

### Thompson & Holmes Appointed Stewart-Warner Distributor

CHICAGO—Thompson & Holmes, Inc., has been appointed distributor for Stewart-Warner refrigerators in the San Francisco and Sacramento territory, according to an announcement by John Ditzell, sales manager of Stewart-Warner Corp.

J. W. Holmes is president of the distributorship; C. A. Larrah is vice president and general manager; and Robert E. Crane is secretary.

### McDonald to Direct G-E Sales In Southwestern District

DALLAS—J. P. McDonald, former district manager for General Electric Co. in the St. Louis territory, has been named manager of G-E's southwestern district with headquarters here.

Mr. McDonald succeeds F. W. Wheeler, who has been transferred to St. Petersburg, Fla.

### Denton Co., Tulsa Dealer, Moves to New Location

TULSA, Okla.—The Denton Co., owned by Raymond Denton and Howard Kirchner, has moved to new and larger quarters at 102 S. Lewis St. Fifteen persons are employed by the firm, which handles Electrolux refrigerators, Maytag washers, Chambers ranges, and RCA-Victor radios.

### Lumber Co. to Handle Norge Line in New Haven, Conn.

NEW HAVEN, Conn.—DeForest & Hotchkiss Co., lumber firm, has entered the appliance field, featuring the complete line of Norge household appliances.

### Kerosene Unit Sales Campaign Opened in Birmingham Area

BIRMINGHAM, Ala.—An expansive campaign for the sale of kerosene-operated refrigerators in this territory was launched Nov. 25 at a sales meeting attended by a large group of representatives and dealers of the Alabama Appliance Company and Servel Electrolux distributors.

The meeting, one of the series of similar meetings being held in various cities in this area, was sponsored by Servel, Inc., of Evansville, Ind.

Roderic Peters, regional sales manager of Servel, with headquarters at Washington, D. C., acted as chairman. C. J. Doyle, district sales manager, whose headquarters are in Birmingham led the discussion.

Other speakers were Enloe McClain, Nashville; Lester Le Pack, Jacksonville, Fla.; W. Wallace, Washington, D. C.; B. Blivens, Atlanta, Ga.; C. R. Rew, president, Alabama Appliance Co., Birmingham, and F. V. de Gruy, Birmingham.

### Brucken Radio Corp. to Sell Electrolux in Evansville

EVANSVILLE, Ind.—Appointment of the Brucken Radio Corp. as Electrolux refrigerator dealer has been announced by Clarence Kirchdorfer, vice president and manager of the Evansville branch of R. C. K. Distributing Co., tri-state distributor of Electrolux refrigerators.

### Oklahoma Tire & Supply Co. Opens Wichita Store Selling Norge Line

WICHITA, Kan.—The Oklahoma Tire & Supply Co. opened a new retail unit here Nov. 27, with Norge refrigerators, ranges, and washing machines, and Philco radios in its selection of major appliances. Manager of the new store is Julius Sandten.

The new unit is the thirty-seventh owned by the company in Oklahoma, Arkansas, Missouri, and Kansas. An additional 23 stores are associated with the company, which started with one unit in Okmulgee, Okla., 19 years ago.

### First Kelvin Home in Dayton Opened on Nov. 28

DAYTON—This city's first Kelvin Home was opened for public inspection on Nov. 28. Located in the Patterson Park section, the home is completely equipped with Kelvinator appliances, and has a year-around Kelvinator air-conditioning system.

Graybar Electric Co. supplied the home's appliances, and the Ball Store Fixture Co. the air-conditioning equipment. These two firms, together with suppliers of building materials used in the home, and local Kelvinator dealers, cooperated in a full-page advertisement announcing the home's opening.

### New Appliance Section Opened by Dayton Department Store

DAYTON—The Rike, Kumler Co., a leading department store, opened on Dec. 4 its new appliance department in the store's new addition which is rapidly nearing completion. The firm is spending \$1,500,000 in its building expansion program.

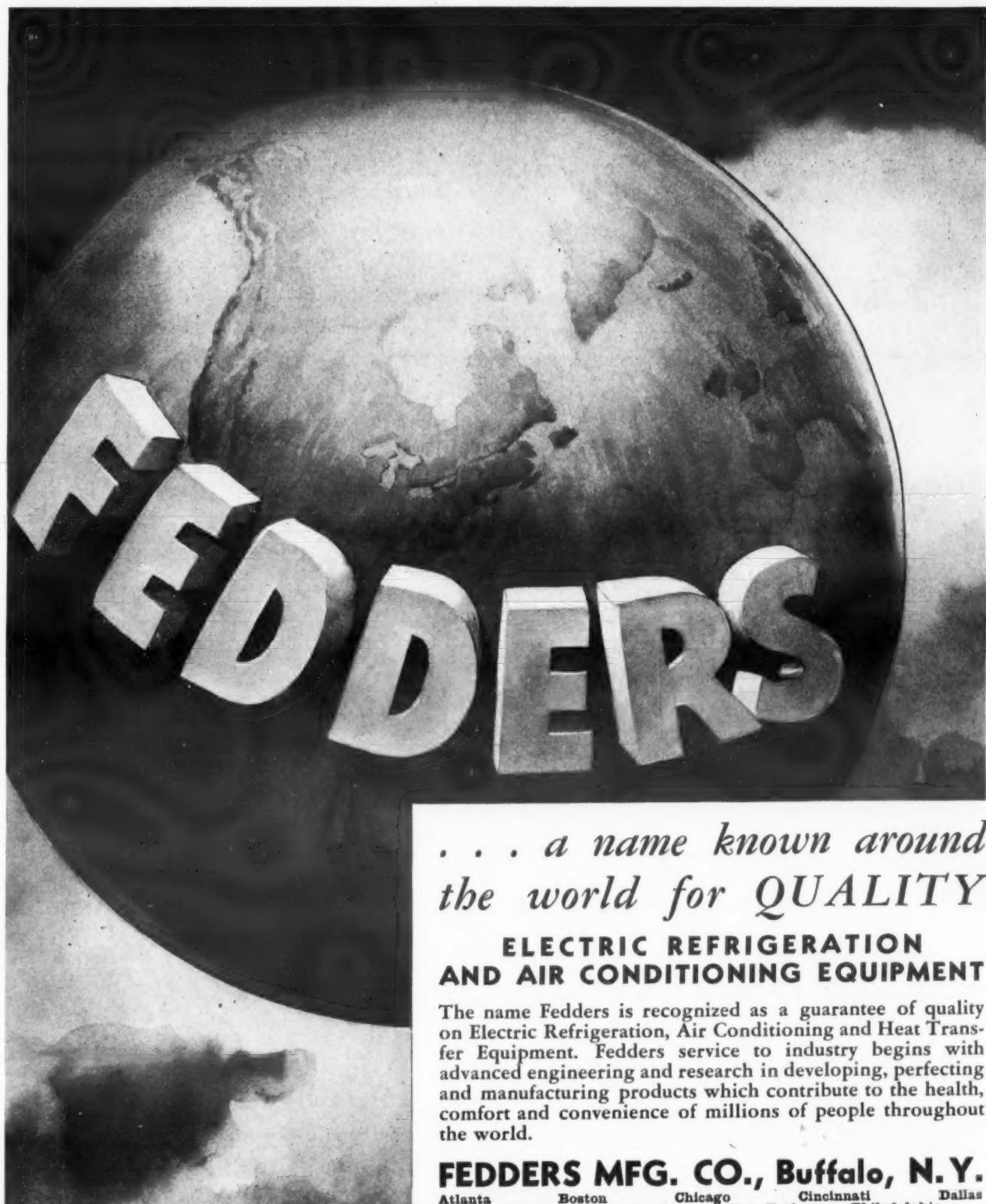
The new department is located on the first floor. Complete lines of Frigidaire refrigerators and electric ranges, Magic Chef ranges, Zenith, Philco, and RCA radios, Maytag, AMC, and Easy washers and irons and White sewing machines are being displayed.

### 2 Texas Furniture Stores Named Dealers for G-E Appliances

SAN ANTONIO, Tex.—Appointment of Limerick Furniture Co., Corpus Christi, Tex., and Karotkin Furniture Co., Austin, Tex., as full-line General Electric refrigeration and appliance dealers was announced here recently by Fred Stacy, local manager of General Electric Supply Corp.

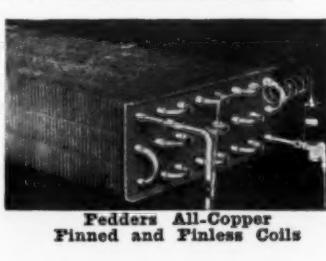
The Limerick Co. was organized recently by G. L. Limerick, who moved to Corpus Christi from Illinois.

Leonard Karotkin is manager of the Karotkin Co.



### FEDDERS MFG. CO., Buffalo, N.Y.

Atlanta Boston Chicago Cincinnati Dallas  
Detroit Los Angeles New York Philadelphia



ARE YOU GETTING YOUR COPY OF THE FEDDERS NEWS?

# ALL RIGHT—WHO GETS IT?

ONE CENT NEVER BOUGHT  
SO MUCH COLD AND ICE!

Kelvinator has an all-time sensation in the new "POLAR POWER" Unit, with its tremendous cold-making power and economy... on all-time VALUE in its brilliantly planned new convenience!

Look what one penny's worth of electricity will buy you in Kelvinator, the CHAMPION ICE MAKER! Enough cold to freeze 72 or MORE big cubes!

And that's just a sample of the new economy Kelvinator's "POLAR POWER" Unit has made possible.

But economies don't stop with Kelvinator's new "POLAR POWER" Unit. It's packed with conveniences, either.

See Kelvinator's amazing new SPEEDY-CUBE RELEASE. No splashing at the sink. No melting in the hot water faucet.

See how a clever new shelf arrangement lets Kelvinator hold more food than other refrigerators the same size.

And think how proud you'll be to own a real Kelvinator... the world's most beautiful refrigerator with the oldest and most honored name in the industry. You can get it for only a few cents a day.

Now, Nash-Kelvinator Corporation, Kelvinator Division, Detroit, Michigan.

**4-COLOR PAGES**  
Brilliant, smashing ads... running continuously in SATURDAY EVENING POST . . . COLLIERS . . . AMERICAN WEEKLY . . . and other powerful magazines!

HERE'S WHERE YOU CAN SEE THIS MIRACLE OF COLD-MAKING TOMORROW



PROVES  
ICE-MAKER!

KELVINATOR'S  
ICE-MAKING!

nd figures on Kelvinator's  
"POLAR POWER" Unit—its record-  
BREAKING . . . LOW COST!

plenty of ice...sure-fire success with frozen  
desserts...absolute protection for foods.  
See Kelvinator tomorrow...its amazing  
new Speedy-Cube Release, and the wonder-  
fully adjustable shelves that hold more food!

You can buy a Kelvinator for only a few  
cents a day! You couldn't be prouder  
than your Kelvinator—because it's Amer-  
ica's most beautiful refrigerator, and be-  
cause it has the oldest and greatest name  
in the business.

Why wait? Look at Kelvinator tomor-  
row. Nash-Kelvinator Corporation, Kelvinator  
Division, Detroit, Michigan.

RECEIVING TEL.

## BREAKING THE GREATEST STORY IN REFRIGERATOR HISTORY!

You have never seen refrigerator ads like the tornado Kelvinator is turning loose for 1938. There's plenty in them to get excited about.

They're in full color...they're full pages...they run continuously (and we mean continuously) in the most popular, most influential magazines in the country.

They've got new "interest getting" power that starts with the first word and never lets up.

They've got a new way of glorifying a beautiful refrigerator in pictures...and telling a whole sales-story in pictures...that will be one of the big wallops of the year.

Then there's a smashing, fighting campaign of power-house space in Key Cities...listing dealers.

BUT THAT'S ONLY A SMALL PART OF IT! There's a complete, balanced, carefully-

planned, "tailored to order" program for each individual dealer's local use.

And every detail, every word and line of it is sharp-pointed fighting, SELLING HELP—right on the target of making sales NOW!

It's so big and so good that you'll kick yourself all year if you don't find out about it...and get in on it...right now!

Gangway for the 1938

# KELVINATOR

# THE \$5,000 FIRST PRIZE

## AND THE 7 OTHER PRIZES IN THIS \$8,000 KELVINATOR CONTEST THAT'S OPEN TO THE WHOLE ELECTRIC APPLIANCE INDUSTRY?

### FULL DETAILS HERE!

**Everyone in the industry can get in on it—presidents or office boys—ANYONE who is not on the Kelvinator office or factory payroll. IT'S WIDE OPEN!**

There's something mighty big happening at Kelvinator . . . again this year! So big we want every person in the industry to know and understand it from A to Z. That's the purpose of this \$8,000 contest—with its \$5,000 first prize.

Now for the facts you need to get in on it . . . simple . . . straight-forward . . . no red tape nor strings.

First—See the 1938 Kelvinator line, and learn about the 1938 Program, through your nearest Kelvinator distributor.

Second—Decide which of the following three factors will be most helpful to Kelvinator Dealers in 1938 . . . and tell, in a letter of 50 words or less, why you think so.

**1 THE PRODUCT**—12 beautiful new 1938 models . . . sealed, silent Polar Power unit so amazingly efficient and economical it delivers 72 big ice cubes for 1c (figured at the national average rate for electric current) . . . sensational new Speedy-Cube ice release . . . remarkable, exclusive new shelf adjustability . . . and a score more great selling features.

**2 1938 ADVERTISING PROGRAM**—tremendous, continuous full-page, four color campaign in foremost magazines . . . tremendous "key city" campaign, listing dealers . . . and individually tailored local program for every Kelvinator dealer.

**3 1938 SALES-CLOSING PROGRAM**—tested and proved sales-training materials . . . door openers . . . carefully planned

seasonal selling-campaigns . . . generous customer financing-plans . . . and plenty more!

#### \$5,000 FOR 50 FRANK WORDS!

See the products and get the facts from your Kelvinator distributor.

Use your own good judgment as to which of the above factors in the whole mighty program will add most to its success.

Then tell us, in a letter of 50 frank words or less, why you figure it that way. Doesn't matter a bit which factor you think counts most—or whether or not that factor actually does turn out to be most important.

We're after frank opinions . . . good business thinking by the people in our own industry. And an office boy's letter will be read and considered on absolutely even footing with the letter from a president of a company.

**THE PRIZES** will be: \$5,000 first prize; \$1,500 second; \$500 third; and five prizes, fourth to eighth inclusive, of \$200 each. Substantial enough to be worth trying for, in any man's time.

**THE RULES** are just three: anyone in the electrical appliance industry can compete except people on the Kelvinator office or factory payrolls; letters must be limited to 50 words; and all letters must be postmarked before midnight, January 30, 1938, addressed to *DEPT. K, Kelvinator, Division of Nash-Kelvinator Corporation, Plymouth Road, Detroit, Mich.*

There you are. Come one, come all!

SEE THE NEW KELVINATORS AND GET FULL 1938 PROGRAM STORY FROM YOUR NEAREST KELVINATOR DISTRIBUTOR!

#### LIST OF KELVINATOR DISTRIBUTORS

Albany, N. Y.	Albany Garage Co., 28 Howard St.
Albuquerque, N. M.	Raab-Mauger Co., 112 W. Copper St.
Amarillo, Tex.	Amarillo Hdwe. Co., 506 Tyler St.
Atlanta, Ga.	Graybar Elec. Co., Inc., 167 Walton St., N.W.
Baltimore, Md.	Nash-Kelvinator Corp., 1426 N. Charles St.
Bay City, Mich.	George F. Dent Co., 210 Fifth Ave.
Birmingham, Ala.	R. P. McDavid & Co., 2104 First Ave., No.
Boise, Idaho	Walker Electric Co., 10th & Grove Sts.
Brooklyn, N. Y.	E. A. Wildermuth, 1102 Atlantic Ave.
Buffalo, N. Y.	Appliance Wholesalers, Inc., 320 Franklin St.
Burlington, Vt.	G. S. Blodgett Co., Inc., 190-200 Bank St.
Cambridge, Mass.	The Eastern Co., 620 Memorial Drive
Casper, Wyo.	Casper Supply Co., 444 S. Center St.
Chicago, Ill.	Nash-Kelvinator Corp., 2451 So. Mich. Ave.
Cincinnati, Ohio	Graybar Elec. Co., Inc., 310 Elm St.
Clarksburg, W. Va.	Williams Distributing Co., 406 N. Sixth St.
Cleveland, Ohio	Graybar Electric Co., 1010 Rockwell Ave.
Columbus, Ohio	Pixley Electric Supply Co., 129 Chestnut St.
Dallas, Texas	Graybar Electric Co., Inc., 400 S. Austin St.
Davenport, Iowa	The Elec. Equipment Corp., 116-118 E. First St.
Des Moines, Iowa	Sidles Co., 118 Tenth St.
Detroit, Mich.	Nash-Kelvinator Corp., 4809 Woodward
Erie, Pa.	Winter Co. of Erie, 1015 State St.
Fresno, Calif.	Devlin Drew Co., 718 F Street
Gastonia, N. C.	Moore & Stewart, Inc., 105 E. Franklin St.
Green Bay, Wisc.	Morley-Murphy Co., 112-14 Washington St.
Greenville, N. C.	Carolina Sales Corp., Third & Cotanche Sts.
Hagerstown, Md.	Bohman-Warne, Inc., 16 Summit Ave.
Helena, Mont.	Modern Utilities Co., Fuller & Lawrence Sts.
Henderson, Ky.	Lambert-Grisham Co., Inc.
Houston, Texas	Straus Bodenheimer Co., 1510 Preston Ave.
Huntington, W. Va.	Emmons Hawkins Hdwe. Co., 1028 Third Ave.
Indianapolis, Ind.	Kiefer-Stewart Co., 141 W. Georgia St.
Jacksonville, Fla.	Graybar Electric Co., Inc., 2302 Main St.
Kalamazoo, Mich.	North Davis, Inc., 439 Portage St.
Kansas City, Mo.	Richards & Conover Hdwe., 5th & Wyandotte Sts.
Knoxville, Tenn.	East Tennessee Elec. Co., 612 E. Depot St.
Lancaster, Pa.	Landis Electric Shop, 121 N. Duke St.
Lansing, Mich.	Garlock Sales Co., 105 W. Washtenaw Ave.
Lincoln, Neb.	Sidles Co., 1228 P Street
Little Rock, Ark.	555 Incorporated, Broadway & Second
Long Island City, N.Y.	Nash-Kelvinator Corp., 27th St. & Pearson Pl.
Louisville, Ky.	Graybar Electric Co., Inc., 626 6th St.
Memphis, Tenn.	Arthur Fulmer, 260-270 Monroe Ave.
Miami, Fla.	Graybar Elec. Co., Inc., 68 N. E. 20th St.
Milwaukee, Wisc.	Morley-Murphy Co., 424 N. Plankinton Ave.
Minneapolis, Minn.	Graybar Electric Co., Inc., 413 S. Fourth St.
Newark, N. J.	Krich-Radisco, Inc., 422-43 Elizabeth Ave.
New Britain, Conn.	Rackliffe Bros. Co., Inc., Park & Bigelow Sts.
New Orleans, La.	C. T. Patterson Co., Inc., 800 S. Peters St.
Norfolk, Va.	Tidewater Electric Co., 127-135 E. Olney Rd.
Omaha, Neb.	Sidles Co., 502 S. 19th St.
Pensacola, Fla.	Pensacola Hardware Co.
Peoria, Ill.	Marquette Appliance Co., 800 S. Wash. St.
Philadelphia, Pa.	Raymond Rosen & Co., N.W. Cor. 31st & Walnut
Phoenix, Ariz.	Electrical Equipment Co., 424 N. Central Ave.
Pittsburgh, Pa.	C. R. Rogers Co., 5434 Penn Ave.
Portland, Ore.	Appliance Wholesalers of Ore., 123 N.E. 3rd Ave.
Poughkeepsie, N. Y.	Poucher, Wood & Wallin, Inc., 407-9 Main St.
Providence, R. I.	Post & Lester Co. of R. I., Inc., 89 Broadway
Richmond, Va.	Gathright's, Inc., 416 E. Grace St.
Roanoke, Va.	Thurman & Boone, Inc.
Roswell, N. M.	Mabie Lowrey Hdwe. Co., 115 N. Main St.
Salt Lake City, Utah	Flint Distributing Co., Box 1470
San Antonio, Texas	Southern Equip. Co., Cor. Villita & Navarro
San Diego, Calif.	San Diego Standard Elec. Corp., 1407 Columbia
San Francisco, Calif.	H. R. Baxford Co., 425 Second St.
Savannah, Ga.	M. Wilensky & Son, Inc., 223 E. Broughton St.
Seattle, Wash.	Graybar Electric Co., Inc., King & Occidental Sts.
Sioux City, Ia.	M. H. Kirchbaum, 417 W. 3rd St.
Sioux Falls, S. D.	Tri-State Electric Co., 407 E. Eighth St.
South Bend, Ind.	Radio Equipment Co., 213 W. Jefferson Ave.
Spokane, Wash.	Tull & Gibbs, Inc., First & Wall Sts.
Springfield, Mo.	Ozark Motor & Supply Co., 308-19 S. Jefferson
St. Louis, Mo.	Graybar Electric, Inc., 1220 Spruce St.
Syracuse, N. Y.	Graybar Elec. Co., Inc., 327 North West St.
Tampa, Fla.	Graybar Electric Co., Inc., 416 Ella Mae St.
Toledo, Ohio	V.J. McGranahan Dist. Co., 1702-04 Madison St.
Welch, W. Va.	Jones Cornett Elec. Co.
Wheeling, W. Va.	Earle Rogers Co., Main & 12th Sts.
Williamsport, Pa.	Williamsport Auto Parts Co., 241 W. Third St.
York, Pa.	The Careva Co., Inc., 145-47 W. Market St.
Youngstown, Ohio	Stambaugh-Thompson Co., 114-118 W. Fed St.

# The Champion Ice-Maker!

## Kelvinator Interior Easily Rearranged



The interior of the Kelvinator model K-6 shown above may be rearranged into seven different positions.

## Kelvinator Uses Hermetically Sealed Unit; Interior of Cabinet Is Redesigned

(Concluded from Page 1, Column 5) positions, and on the 5-cu. ft. models two shelves are adjustable to five positions.

The dial and built-in thermometer are illuminated, and are centered for appearance's sake. The high speed freezer is equipped with a stainless steel, heavy-gauge evaporator door.

The food file has been completely redesigned, and on the "PK" models a six-piece set of oven-proof dishes is standard equipment.

Kelvinator's 1938 line will again be led by the four super-deluxe models which provide four "air-conditioned" food compartments, en-

tirely separate from the freezing chambers, and equipped with forced-draft air circulator.

Cooling unit in the food chamber in the super-deluxe models consists of a single flat plate of chrome finish placed against the left wall. It is claimed that no defrosting is ever necessary in the food compartment, since the cooling unit plate maintains correct food temperatures without becoming so cold as the conventional type of freezer.

### AIR CIRCULATION

Air circulation in these models is accomplished by a small, completely enclosed fan in the upper right-hand

corner which throws a stream of air over and down the surface of the cooling plate. After circulating through the compartment, the air is purified by an activated charcoal filter which removes any odors.

In the ice-freezing compartment the coils of the freezer maintain a temperature of around 8 to 10° F. A separate part of the freezing compartment in every model is designed for below-freezing storage of meat, fowl, or game.

Variable temperatures may be provided in the below-freezing storage chamber of model SD-13 by dropping the hinged baffle plate that separates the lowest ice chamber from the below-freezing storage chamber.

### DRY CUBE TRAYS

Dry cube ice trays, constructed entirely of rubber over a spring-steel wire frame, are another feature of the super-deluxe models. A specially made handle, a continuation of the frame, allows the tray to be bent easily, popping out as many cubes as wanted instantly, and without removing the tray completely from the freezing chamber. Bending the trays to loosen the cubes does not harm them.

Each "SD" model has two double depth trays equipped with two single rubber grids, one on top of the other, separated by a metal divider, providing extra capacity to supplement the regular trays when necessary.

### FOOD WHEEL

Also standard in the "SD" line is the Kelvinator food wheel, consisting of a revolving circular base on which are placed five matched, covered crystal dishes. The entire assembly slides easily forward or backward on gliders fitted over the bars of the shelf on which it rests.

In the Kelvinator "food file" all drawer fronts are finished in two-tone aluminum and have black bakelite handles. The SD-13 and SD-17 include a large capacity thrifit drawer equipped with three matched china dishes, glass covered, for leftovers.

In models SD-7 and SD-9 the thrifit compartment, also fitted with three matched china dishes, is a basket made of round, tin-dipped bars. A separate drawer in each deluxe model encloses a Kelvinator crisper. Completing the food file assembly is a fruit or utility drawer.

### PANTRY SET

A refrigerated pantry set, consisting of a large mixing bowl and a refrigerated rolling pin, are provided with each "SD" model and are designed to fit compactly in the refrigerator when not in use.

Chief characteristic of the 1938 Kelvinator electric range is the air-flow, single-unit oven. In all seven models shelves in the oven chamber are adjustable, and either Chromalox or armored surface elements protect the heating element from contact with cooking utensils and food.

Other features are a built-in Scotch kettle, or well-type cooker, and the automatic timing clock.

The 1938 washer line includes one new model in the regular line. Five

## Canadian Group at Kelvinator Preview



(1) This section of the Canadian delegation to Kelvinator's convention looks happy enough. Left to right are G. W. Blay, Toronto branch manager; C. W. Hadden, general manager, Kelvinator of Canada, Ltd.; Tom Dunne, Robert Simpson Co., Toronto department store; J. S. Blay, general sales manager, Toronto branch. (2) "Marching along together," this group represents nearly the whole range of

the diversified activities that go into the manufacture and wholesaling of an electric refrigerator. From left to right are Dorothy Covert, Kelvinator home economist; Raymond Rosen, Philadelphia distributor; Edward Heitman, Kelvinator's chief engineer; M. S. Bandoll, sales manager of household electric refrigeration; and Dr. L. A. Philipp, director of the Kelvinator laboratories.

## Tray Release



Finger-tip pressure is all that is needed to release the new Kelvinator tray from the evaporator.

single-tub models cover every price bracket, and in addition there is a deluxe double-tub washer and two rotary dryer models. The "fin-flex" agitator and "pressure-ator" wringer are exclusive Kelvinator features of these models. Entire line of models is finished in Permalux.

Both the electric ironer and electric water heater lines remain essentially the same.

## Buffet Prize Awards Are Announced by Institute

NEW YORK CITY—Divisional awards in a table setting display contest held in connection with Electrical Buffet Entertaining Month in October, and jointly sponsored by a group of electrical appliance manufacturers, have been announced by Edison Electric Institute.

Rike, Kumler Co., Dayton, won first prize in the department store division, and a cash prize of \$50 was awarded to the store's assistant buyer of housewares, Robert L. Hoover.

First prize in the dealer division was won by Dauphin Electrical Supplies Co., Harrisburg, Pa. Glenn J. Krone was awarded the \$50 prize.

In the utility division, first prize went to Union Electric Co. of Missouri, St. Louis, and the \$50 was earned by Paul Kloeris, who designed and arranged the company's display.

Contest judges were Miss Ada Bessie Swann, director of home service center, Woman's Home Companion; Miss Mildred Nichols, director of home economics, Graybar Electric Co.; and Miss Florence Freer, director of home economics, Brooklyn Edison Co.

## CONDENSERS EVAPORATORS

34 years specialized experience in this field has qualified us to give you intelligent, practical engineering cooperation on both electric refrigeration and air conditioning applications, large and small.

LONG MANUFACTURING DIVISION  
BORG-WARNER CORPORATION  
DETROIT, MICH.  
WINDSOR, CAN.

**LONG**

## MUELLER BRASS CO. New and Improved

### GREATLY INCREASED SCREEN AREA MORE EFFICIENT • LESS RESTRICTION

These new TIME-TESTED Dehydrators have these outstanding advantages:

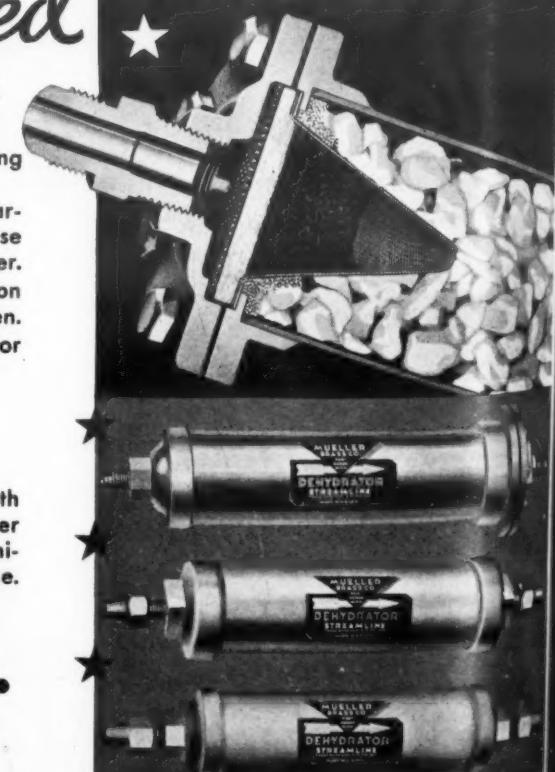
1. Cone-shaped screen—providing greatly increased separating area. Shape of screen causes particles to settle at base of cone, permitting free passage of refrigerant through center.
2. Pure wool packing inside cone screen—a further protection which traps dust-like particles which may penetrate screen.
3. Improved felt pad between interior cone screen and exterior flat screen.

Most dehydrating agents used in refrigerating systems are continually being subdivided into smaller or dust-like particles. This may happen through the taking up of moisture, or by abrasion, etc. These particles restrict the capacity of, and sometimes completely clog the disc screens and filters with which the old, or conventional, type dehydrator is equipped, resulting in pressure drop and eventual trouble at the expansion valves.

All Mueller Brass Co. Dehydrators are now provided with cone-shaped screens. This new feature, together with other improvements, provides maximum drying efficiency with minimum pressure drop. There is a right style for every purpose. Write for descriptive literature.

Stocked by leading jobbers everywhere.  
**MUELLER BRASS CO.**  
PORT HURON, MICHIGAN  
**STREAMLINE**  
TRADE MARK REG. U. S. PAT. OFFICE

## DEHYDRATORS



# TAKE THE WORD OF SOME TYPICAL NORGE DEALERS\*

"I consider Norge by far the outstanding refrigerator both from the selling and the user viewpoint. The Norge Rollator Compressor is the greatest sales feature it has been my good fortune to use in my entire selling experience."

"We maintain our own service department in which we see that not a nickel is ever charged to our customers for repair or upkeep of Norge products. In three years time we find the cost of maintenance to be exactly \$12.00."

"It has been a pleasure to sell Norge equipment. After a thorough study of all refrigerators in this market, I feel I made a very wise move to sell Norge exclusively. The Rollator puts all other refrigerators in the shade."

"Selling good merchandise and giving service is the foundation of any successful business. My partner and I decided to make Norge our leading line because we were thoroughly sold on Norge products. We have been very successful."

"I not only sell Norge, but I use Norge products in my home—everything from the Low-Temp refrigerator to the range, washer, ironer and oil burner. I always sell prospects the idea of a Norge-equipped home."

"The Norge refrigerator power plant tops all others in performance and service. The refrigerator is a beautiful addition to any home. The outlook for business in 1938 is very good in this district."

\*NAMES ON REQUEST



## NORGE erases "Red Ink" Months with BETTER PRODUCTS—MORE PROFITS HIGHER TURNOVER

Every month is a profit month for appliance dealers who handle the full Norge line! There is always sales activity in Norge Rollator Refrigeration, Concentrator Gas and Electric Ranges, Autobuilt Washers, Duotrol Ironers, and package heating and commercial refrigeration equipment. 1938 products—greatest in Norge history—give dealers dramatic sales features that prove Norge superiority.

Get full details about the valuable franchise Norge is offering now to aggressive dealers who want to make money the year around as Norge Master Merchants. Product turnover is *high*—dealer and salesman turnover is *low* in the Norge picture. Liberal finance plans and a smashing new advertising and sales promotion program back the man who sells Norge to the limit. You owe it to yourself to get the whole story *now*.

**NORGE DIVISION Borg-Warner Corporation, Detroit, Michigan**

# NORGE

FREE TO APPLIANCE DEALERS

- A full volume on appliance selling and promotion. One of the greatest dealer helps ever produced. Describes a complete plan of store operation. Tells how to get the most out of advertising and sales promotion. Reveals for the first time a new tested method of visual selling. No matter what products you sell, this book will show you how to make more money in the appliance business.

*Mail Today!*

NORGE DIVISION Borg-Warner Corporation,  
658 East Woodbridge Street, Detroit, Michigan.  
I would like to receive a copy of your new book  
for appliance dealers.

NAME.....

ADDRESS.....

CITY.....

STATE.....

## COMMERCIAL REFRIGERATION

### Frick Installations Made in Two Virginia Florist's Shops and State Capitol

RICHMOND, Va.—Virginia Ice Machine Corp., distributor of Frick commercial refrigeration equipment for the past nine years, recently installed cooling equipment in two florist shops here, and a circulating drinking water system in the Virginia state capitol building, according to C. M. Selph, president.

The company handles Frick low-pressure Freon-12 and methyl chloride units from  $\frac{1}{3}$  hp. up, and from  $3 \times 3$ -inch to  $7 \times 7$ -inch double cylinder ammonia machines.

One of the company's recent installations was in the  $22 \times 9 \times 8$ -foot flower storage room of John L. Ratcliffe, Inc. The contract included carpenter work, cork insulation, and cold storage door, as well as the mechanical refrigeration equipment.

Insulation on this job consisted of one layer of 3-in. corkboard on walls, floor, and ceiling. Wall insulation was finished with  $\frac{1}{2}$ -in. cement plaster, and ceiling insulation with Stonewell plastic finish covered with aluminum paint. Over the corkboard on the floor was placed waterproof paper and a 3-in. concrete wearing floor.

The room was refrigerated by a Frick 1-hp. water-cooled, low-pressure unit connected to two aluminum

Peerless Flash coolers with thermal expansion valves. Control is supplied by a mercury-tube room thermostat wired to a solenoid valve in the liquid line, with compressor motor controlled by a suction pressure switch.

Prior to the Ratcliffe job, Virginia Ice Machine Corp. installed similar equipment for Richmond Wholesale Florists.

A Frick 1-hp. Freon unit, an insulated pressure-type water cooling tank, and circulating water pumps are used to provide chilled water for the drinking water system in the capitol building. All water pipe and fittings are of copper.

Drinking water supply and return lines were concealed by furring out pipe shafts and forming dummy pilasters. Some of the interior walls of the building are nearly 3 feet thick.

Drinking water fountains were placed on each floor of the building, for the benefit of visitors as well as employees.

Foundations of the capitol building were started in 1785 and the building was completed in 1792. It was designed by Thomas Jefferson. The capitol is famed historically as the scene of the trial of Aaron Burr.

### 25th Refrigerated Truck Is Added to Borden Ice Cream Fleet in Chicago

CHICAGO—Twenty-fifth of a fleet of small, refrigerated delivery trucks has just been purchased by Borden-Cunningham ice cream division of Borden Co. pr service here.

The truck body is equipped with Dole plate refrigeration, the plates being "pulled down" at night by the ~~garage~~ garage ammonia system. A temperature of 0° F. is maintained within the body, which has a capacity of 240 gallons of ice cream.

Roof is insulated with 6 in. of Dry-Zero Blanket, sides and ends with 4 in. of Blanket and 2 in. of Sealpad, and the floor with 6 in. of cork.

The body is mounted on a General Motors Corp. chassis.

### Kold-Hold Units in New Meat Truck

FT. COLLINS, Col.—Equipped with two Kold-Hold units and insulated with 3-in. Dry-Zero Blanket, a refrigerated truck has been commissioned by Northern Packing Co. here for distribution of fresh and smoked meats, cheese, and oleomargarine.

Temperature of approximately 40° F. is maintained within the rear compartment of the truck by the refrigerating units, one of which is mounted on the wall and the other under the roof. When the truck is in the packing company's garage, the refrigerating system is hooked up to an ammonia plant.

The truck body, which has a load capacity of 6,000 lbs., was built by Winter Weiss Co. of Denver and mounted on a Diamond T chassis.

### Refrigerated 'Stores On Wheels' Used by Tulsa Meat Dealer

TULSA, Okla.—Three refrigerated trucks serving as "stores on wheels" are used by Frank Banfield & Sons Dressed Beef Co. here to enable customers to shop from their own doorsteps.

Each streamlined truck body, mounted on 2½-ton Dodge chassis, is equipped with a refrigerating system which maintains the interior temperature at 35° F. The unit is mounted under the body, and the finned refrigerating coil, made by Reynolds Mfg. Co., Springfield, Mo., is installed on the front wall of the cab interior.

Power for the motor operating the compressor is supplied by a direct current generator driven from the truck's transmission. The system is so arranged that a switch may be thrown and the motor connected with the electric circuit in the Banfield garage when the truck is not in use.

Electrical equipment in the truck was made and installed by Century Electric Co., St. Louis; the bodies themselves were specially designed and built by Springfield Wagon and Trailer Co., Springfield, Mo.; and the insulation, 5 in. in the roof and 4 in. in sides, ends, and floor, was made by Dry-Zero Corp., Chicago.

Interior dimensions of the trucks are: height, 6 ft.; length, 11½ ft.; width, 6 ft. A 2-ft. aisle down the center provides ample room for customer and salesman to move around while inspecting the meat, which is hung from an overhead rail on each side. Fancy meats and packaged foods are carried on shelves and in boxes on the floor under the suspended beef.

### Julius Korn Co. Markets Display Case for Beverages

CHICAGO—Julius Korn Co., manufacturer of beer dispensing equipment, has recently put on the market a beverage display refrigerator designed to provide extra-large storage space for half-gallon bottles in its lower compartment, and space for smaller bottles and cans in its upper shelf.

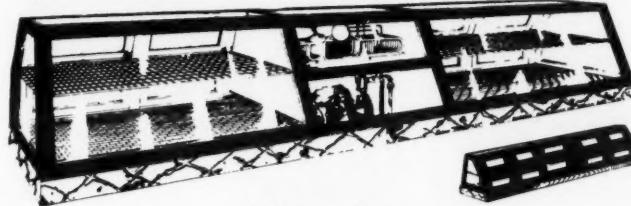
Entire exposed surface of the refrigerator is made of stainless steel. The display compartment itself is dry refrigerated, to make handling of stored contents more convenient.

### Was It the First 'Unitized' Display Case?

#### KOLDKASE

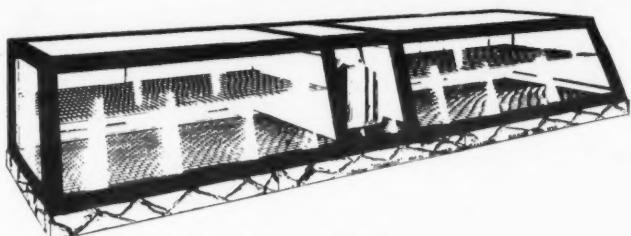
##### Style Show of Electric Models

Even Old King Winter, with His Icy Blasts, Must Take Off His Hat to KOLD KASE, for a KOLD KASE never has a "January Thaw." Just an even, crisp, dry cold, like the most exhilarating of wintry days; that's the kind of atmosphere that KOLD KASE always maintains to give all the microbes such a cold reception that they'll drive right on to the next store.



Efficiency Electric Model

This model, built to receive 1 H.P. Frigidaire Compressor and 15 H. Cooling Coil, is used when conditions do not permit placing the Frigidaire unit in basement.



Economy Electric Model

This model, built to receive Frigidaire cooling coil, is used whenever it is possible to place compressor in basement, using all of the coil for display. Note the great display space this case provides.

##### WITHIN REACH OF ALL—SEE PRICE LIST

Manufactured by Badger Show Case Co. Green Bay, Wis.

In a letter reprinted on this page, H. W. Beddoe criticizes the statement in a News editorial that "Hussmann has lead the way" in selling "a complete commercial refrigeration installation" and assuming "full responsibility for the entire installation."

He claimed that Super-Cold inaugurated this practice of selling unitized equipment.

Super-Cold Southwest Co.  
2021-23 Commerce St., Dallas, Texas  
Nov. 3, 1937.

Publisher:

From time to time I have noticed articles in your paper giving credit to men in the industry for promoting and pioneering new ideas into the industry and in each case these NEW ideas are ideas that had been in practice by Super-Cold Corp. for years. I have passed these articles by with a shrug of the shoulder but your editorial in the Oct. 27 issue is more than I can digest.

You give credit to Frigidaire, Kelvinator, and especially to Hussmann for pioneering something that Super-Cold inaugurated several years before anyone else gave any attention to it. I refer to your statement that Hussmann has led the way to the selling of meat display cases equipped with coils and condensing unit. Not only did Super-Cold inaugurate this practice but is and has been manufacturing their own condensing units for years. Super-Cold and not Hussmann has led the field in unitized equipment.

If your statement that Hussmann has led the field in the volume of sales is no more authentic than your other statement, I will have to lose my faith in your paper and I wouldn't like to do that for I have always considered it the best trade paper I have ever read. I know that they do not lead in volume in the Southwest.

I believe, if you will look into it thoroughly, you will find that there is nothing about the Hussmann case, or any other case of similar structure, that is not a "take-off" from the Super-Cold case. If this is true don't you think you should retract your statements?

This is a personal and not an official Super-Cold communication.

H. W. BEDDOE.

Answer: Your first paragraph states that: "From time to time I have noticed articles in your paper giving credit to men in the industry for promoting and pioneering new ideas into the industry and in each case these new ideas are ideas that have been in practice by Super-Cold Corp. for years."

That statement covers a lot of territory and it is difficult to make any comment upon it in the absence of specific reference to the articles in question. Is it possible that you mean to assert that all new ideas in the refrigeration industry, or any part of the industry, have invariably been originated by Super-Cold?

With specific reference to your criticism of the "credit" given to Frigidaire, Kelvinator, and Hussmann, it very frequently happens that large companies are given such "credit" for initiating products or methods simply because the product or method

So the publisher of the News dug up this folder from the historical files because, back in 1931, R. V. Neuman made the statement that the "Kold-Kase" shown in the folder was the first one ever made with a self-contained refrigeration unit.

Readers are invited to furnish additional historical data on this subject.

begins to attract widespread attention when it is promoted on a big scale by such companies.

In many cases, probably in most cases, the same thing may have been done on a limited scale by one or more others. There is a considerable difference between the technical features of an invention as recognized by the Patent Office and the promotion of a given proposition on a commercial scale.

In brief, the statement that "Hussmann has lead the way" in this new direction, obviously refers to a commercial development rather than an historical incident.

For example, note the illustration of a broadside published by the Badger Show Case Co., Green Bay, Wis., showing a "Kold-Kase" with an electric refrigeration unit installed in the display cabinet. R. V. Neuman, who was at one time connected with that company and who gave this folder to the publisher of the News in 1931, said that it was issued about 1924 or 1925 and that only one unit was built.

We will be interested to know if you can furnish printed literature or any other reliable data to prove that such a complete unit was manufactured previously by the Super-Cold Corp. In brief, if you want to approach this subject from the viewpoint of historical incidents, we will be glad to have information regarding the real originator of the complete electrically refrigerated commercial display case.

If the editorial in question had concerned historical facts, we would undoubtedly have pinned the blue ribbon on the Badger Show Case Co. on the basis of the available information in our files. But obviously the editorial was not discussing the subject from that viewpoint at all.

We are also interested in your statement that Hussmann does not lead the field in sales volume in the Southwest and your statement that Super-Cold has lead the field in unitized equipment. Can you furnish any authentic figures regarding the sales of Super-Cold or Hussmann or any other manufacturers which would show the actual volume of business being done in the United States or any geographic section?

We are just as much interested in getting the truth as you are in seeing that proper credit is given in "The Newspaper of the Industry," and we will greatly appreciate any assistance you can give us in arriving at the actual facts. We are pleased to know of your interest and we are particularly gratified to know that you have, at least in the past, always considered the News as the best trade paper you have ever read. We hope to merit your continued confidence.

## Condensing Units THAT MEAN More Sales... BIGGER PROFITS!



UNIVERSAL COOLER CORPORATION  
CONTRACT SALES DEPARTMENT • DETROIT, MICHIGAN

### The Ultimate in Temperators



POSITIVE DRIP PREVENTION

Write for Bulletin No. 237.

TRENTON AUTO RADIATOR WORKS, Trenton, N.J. NEW YORK PITTSBURGH

### "TRIPLE TROUGH" BY KRAMER

- 1 Unusually deep primary trough.
- 2 Air insulated second trough.
- 3 Air insulated third trough designed to act as a final 'precuation against any drip.'

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## G-E Uses Forced-Draft Cooling in Storage Refrigerator Designed for Meats

CLEVELAND—Designed especially to meet the demand for a storage refrigerator with more storage space for large cuts, smoked meats, etc., two new models with long door compartments and forced-draft cooling units have been added to the General Electric food storage refrigerator line for 1938, announces Harold T. Hulett, manager of the commercial refrigeration section.

New models are the HC-41F, a 41-cu. ft. model, and the HC-64F, a 64-cu. ft. model. Design of these two cabinets provides for remote installation of the refrigerating unit, and both are equipped with the G-E "Conditioned Air" cooling unit, which is said to humidify, circulate, and wash the air inside the cabinet.

A large storage compartment at the right on each model extends from the floor to the top of the refrigerator. There is only one large door, instead of the usual two, to facilitate the use of the compartment.

Model HC-41F has a shelf area of 31.6 sq. ft., gross volume of 43.5 cu. ft., and net volume of 39.5 cu. ft., six shelves, a net weight of 770 lbs., and exterior dimensions of 73 $\frac{1}{4}$

inches high, 55 $\frac{1}{4}$  inches wide, and 35 inches deep.

Model HC-64F has a shelf area of 60.3 sq. ft., gross volume of 67.4 cu. ft., net volume of 63.6 cu. ft., 12 shelves, a net weight of 1,015 lbs., and exterior dimensions of 73 $\frac{1}{4}$  inches high, 81 $\frac{1}{4}$  inches wide, and 35 inches deep.

The first model, the company believes, will be of sufficient capacity for moderate size establishments, while the larger model has capacity sufficient for larger stores, restaurants, hotels, and institutions.

Cabinets are all-steel, inside and out; exterior front and sides are finished in three coats of porcelain; and bottom of the porcelain interior is of acid-resisting material. Insulation in both models is 3 inches thick. There also is an automatic interior electric light, tinned steel wire shelves, adjustable in  $\frac{1}{2}$ -inch steps, chrome plated, heavy brass hardware, replaceable one-piece black rubber door gaskets, and Textolite breaker strips.

Glass panels for the smaller doors in both models are available at additional cost.

## Customer Reverses Procedure by Furnishing Proposal to Salesman with Turkey

CHICAGO—When a customer presents a proposal to a commercial refrigeration salesman, that's news, thinks D. B. Arnold, manager of the commercial division of R. Cooper Jr., Inc., General Electric distributor.

How the customer, Doug Smith, got his chance to reverse the normal order of things on the salesman, L. W. Heinlen, is related by Mr. Arnold as follows:

Mr. Heinlen, one of Cooper's star commercial salesmen, submitted an elaborate proposal to "Pete's Steaks," a Chicago restaurant, and landed an order for refrigeration equipment.

Day before Thanksgiving, Mr. Heinlen was declared winner of a turkey in a Cooper contest—and Doug Smith, owner of the restaurant, offered to have his chef prepare it for the Heinlen family.

On Thanksgiving day, the turkey—together with all the "fixings"—was delivered to the Heinlen home. With it came a "proposal," however, modeled along the lines of the one Mr. Heinlen had previously submitted to the restaurant in his bid for the commercial business.

The "proposal" read in part as follows:

"Dear Sir:  
"We take pleasure in submitting the following proposal for the preparation of your Thanksgiving dinner.

"System 1:  
"Cleaning, parboiling (if necessary), singeing, and cutting off unnecessary parts of your Turkey. Quality, sex, age, physical condition, or mental attitude of your property prior to demise is not covered in any material warranty. Our usual guarantee covering material and workmanship will apply to only our service rendered, and in this case amounts to an "eat it or don't pay the check" basis.

"System 2:  
"Roasting and basteing. Taken on a time and material basis inasmuch as this operation depends on the foregoing 'Quality, sex, age, and mental attitude of the bird before death.' Sometimes the manner of dying is important, but in this case we are assuming that death was natural.

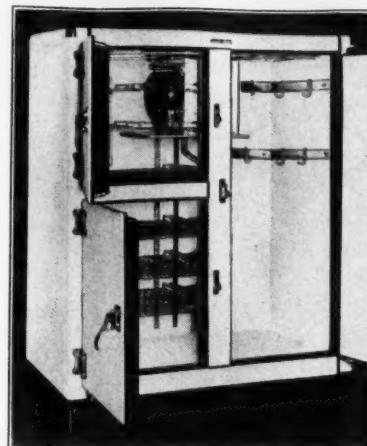
"System 2, Section A:  
"Stuffing—we propose to use . . . bread, raisins, sage, garlic . . . seasoned in our usual manner, or equal. We propose to furnish one liver, one

## Bastian-Blessing Markets Counter Freezer

CHICAGO—A new counter freezer with automatic temperature control capable of making ice cream, frosted milk drinks, and the like, and designed for installation in soda fountains, has been announced by Bastian-Blessing Co.

The freezer occupies a space only 20 inches deep and 30 inches wide, and has selective manual and automatic control.

## Storage Refrigerator



G-E's new commercial cabinet is designed for storage of large cuts of meat.

## War Department Asks For Refrigeration Bids At Wright Field

DAYTON—The War Department will seek bids in January for the installation of air conditioning and refrigeration systems at Wright Field, the Army air corps experimental and research station located here, according to word received from Washington. Plans and specifications for two separate projects will be completed this month.

An allotment of \$42,000 has been set aside for the installation of a refrigeration system, and \$5,500 has been set aside for the air-conditioning system. Both will be used in various buildings at Wright Field.

The Department of Labor has been asked to establish a wage scale to be paid workers employed on the two jobs. The rates will be written into the specifications, and will also be a part of each contract awarded.

## Jarvis Engineering Co. Makes Installation at School

MANCHESTER, N. H.—Commercial refrigerating units for the three cold storage rooms of a new group of buildings at the state industrial school here were installed by Jarvis Engineering Co. of Boston.

## Refrigerated Horse Meat Becoming Popular With Specialty Shops in France

NEW YORK CITY—Some weeks ago there was published in AIR CONDITIONING AND REFRIGERATION NEWS a story about refrigerated "snack-snacks" being put up by a packing company down in Arcadia, Fla. Now comes news of another unique "epicurean ecstasy"—refrigerated horse meat.

The tale is brought back from France by Miss F. M. Dessau, of Melchior, Armstrong, Dessau Co., who just finished a three months' tour of the company's markets in England and France.

In Paris, Miss Dessau came across an ultra-modernistic butcher shop specializing in horse meat. It is the "Boucherie Chevaline," of which Monsieur F. Barbaud is proprietor. The shop front is distinguished by three artistically cast metal horses' heads, the one in the middle being illuminated at night by an outline of neon tubing.

External walls are of Moroccan onyx inlaid with bands of blue

granite. Interior walls are of white tile. Marble-topped counters lend an air of classical grandeur to the shop, and a note of modernity is added by the indirect lighting.

The "stable" in which the divers and sundry portions of defunct dobbin are stored is a Melchior walk-in cooler built into the rear wall of the store. Melco compressors, Fedders coils, Kerotest fittings, and Detroit Lubricator controls comprise the refrigerating mechanism.

Of course, the idea of eating horse meat is nothing new to the French, for they have been partaking of it for a long, long time. For about as long, in fact, as they have been eating frogs' legs, goose livers, snails, and other dubious delicacies.

But refrigerated horse meat is something new and something different, and seems to be spreading, for Miss Dessau says that there are several shops similar to that of M. Barbaud in Paris and other French cities.

## Christensen Will Head Kelvinator Direct Sales Office

DETROIT—Appointment of A. W. Christensen as office manager of the national direct sales division of Kelvinator division, Nash-Kelvinator Corp., has been announced by Edward R. Legg, Kelvinator's national direct sales manager.

Mr. Christensen has been associated with Kelvinator in various capacities since 1928.

## Popping Champagne Corks Bring Refrigeration Order

DAYTON—Popping champagne corks, at \$4 a pop, caused officials of Gallaher Drug Co. to order installation of a Carrier air-conditioning unit, with a  $\frac{1}{2}$ -hp. compressor, in the company's wine room.

The popping was caused by the high temperatures which prevailed in the wine room. The installation was made by Refrigeration Service Shop, Inc., Carrier distributor here.



## WELL BEGUN!

"Houses built upon sand" may stand or fall according to the whim of the elements. But Servel takes no chances!

Realizing that the very foundation of its product rests on the quality of its original castings, Servel has—even from the beginning—owned and controlled its foundries.

Metallurgical research, controlled material and skilled workmen have developed

the uniformity, the fine texture, the tough resistance to wear that have earned an enviable reputation for Servel's cast parts.

Servel can help you solve your most vexing problems of commercial refrigeration or air conditioning . . . whether your requirements are large or small, standard or special. A letter will bring you interesting details.

## MATERIALS...MACHINES ...MANPOWER



CORE MAKING—Patterns and core boxes are also made in Servel's own pattern shop.



CORE SETTING—Moulding skill insures uniformity of texture and strength in castings.



TYPICAL CASTINGS—Several hundred different shapes are cast regularly in Servel's foundry.

**SERVEL Inc.**  
ELECTRIC REFRIGERATION AND AIR CONDITIONING DIVISION  
EVANSVILLE, INDIANA

## AIR CONDITIONING AND REFRIGERATION NEWS

Trade Mark registered U. S. Patent Office; Established 1926 and registered as Electric Refrigeration News

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## Stokers—A Coming Business

TOO LITTLE attention has been paid by most specialty dealers to the possibilities which lie in the coal stoker business.

Here is a product which has a considerable number of responsible manufacturers with only a relatively few specialty dealers. Yet the industry has been growing rapidly, despite the absence of strong selling effort. Its sales increase percentage in 1937 is the largest shown by any type of automatic heating equipment.

### Economy Chief Appeal

Chief appeal of the coal stoker is its economy. Although its first cost is almost as large as the installation of an oil burner, and is even more than that of a gas heater, its operating costs are said to be not more than half the annual cost of heating a home with gas or oil.

As for temperature control, coal stoker proponents claim that they can do even better than those who have oil or gas heat. Both of the latter operate intermittently, and whenever they shut off, the house immediately begins to cool a bit. Not so with a coal furnace, which burns continuously.

### Requires Attention

Principal objection to the stoker is the attention it requires. One trip to the basement is needed daily. Yet the stoker people insist that most men like to fuss with the furnace, that the trip can be made whenever convenient, and even that men accustomed to the routine of refueling their furnace miss this chore when suddenly deprived of it.

Even though these arguments may sound a bit far-fetched at first, it is true that an automatic stoker greatly reduces the amount of attention needed by an ordinary coal furnace.

The hopper-type stoker requires daily hopper filling and clinker

removal; whereas the bin-feed type needs only clinker removal.

Big market, of course, is among homes which already have coal furnaces, although stoker-type furnaces which provide winter air conditioning are available. But older homes, with standard coal furnaces, are excellent prospects for the stoker salesman and his story of economy and efficiency.

### Replacement Market

Many engineers declare that the so-called "conversion burner" (oil or gas burner installed in a coal furnace) is not highly efficient. A new oil furnace is, to be true, a model of efficiency. But many home owners have found that the conversion burner sends up their fuel costs; whereas the stoker manufacturers claim that their product actually cuts previous fuel bills—in addition to its added comfort and lessened labor.

Hence some of the stoker people are now going after a replacement market among those who have bought conversion burners and are complaining about their heating costs. This market should not be considered a large one, for conversion burners are so convenient that most owners express entire satisfaction with them.

In this connection, it should also be remembered that the percentage of conversion burners in use is only a small portion of the total number of homes equipped with coal furnaces.

### Little Specialty Selling

Up until now specialty salesmanship has not entered the stoker picture to any appreciable extent. Plumbing and heating firms—notoriously poor merchandisers—have been the leading outlets. Hardware stores in many cities have stokers for sale, although they haven't pushed them much, for the most part.

In a few isolated instances, coal dealers have been outstandingly successful stoker merchandisers. They are to the stoker industry what the public utilities are to the electric refrigeration industry—although on a much smaller scale, and with this fundamental difference:

### Coal Dealers Like Utilities

Coal dealers sell stokers to protect their business, not to build it, as do the utilities. They know the needs and requirements of coal users, and they know the ones who pay their bills. If they feel that a good customer is inclining an attentive ear to the wooing of the oil burner or gas salesmen, they rush over with a stoker so as to prevent the loss of an account.

Thus far, however, only a relatively few coal dealers have acquired stoker franchises. It is not the kind of business they like to be in, nor do stoker manufacturers consider them, as a rule, good merchandisers.

### It's a Specialty Article

The door seems to be open to the specialty dealer in this new industry. Unit of sale is reasonably high (in the neighborhood of \$200), discounts are long, service requirements are few and simple.

The stoker is a piece of packaged merchandise which responds actively to good promotion and salesmanship, which has a good story of economy and convenience to tell, and which is a profitable

item. In other words, it answers all the requirements of a specialty product.

### Possible Added Line

Best of all, it is an industry which is not yet beset by an oversupply of dealers and consequent price cutting. In a time when nearly all specialty appliance dealers have begun to handle the same items—refrigerators, ranges, radios, laundry equipment—it might behoove alert dealers to look for a product on which competition is not so keen, nor competitors so numerous.

It is not the thought of the News that dealers should abandon their present lines of appliances and rush pell-mell into this promising new field. As an added line, however, the stoker offers interesting possibilities to a limited number of the right type of outlets.

## LETTERS

### Blue Book Issue to The Fore Again

555, Inc.  
Kelvinator Household Refrigerators,  
Air Conditioners, Commercial  
Refrigeration  
Little Rock, Ark.

Gentlemen:

Why not a "blue book" to help solve the trade-in problem in the refrigeration industry? Take a look at the enclosed red book on vacuum cleaners, gotten out by the Progress Corp. of Cleveland.

We believe you would be the logical source for a book of this nature and that it would be invaluable to refrigeration dealers everywhere.

FRANK BURKE,  
Manager, Refrigeration Div.

The S. A. Long Co., Inc.  
Frigidaire Products, Delco-Frigidaire  
Products, Zenith Radio, Electric  
Appliances  
Wichita, Kan.

Gentlemen:

We are desirous of obtaining some sort of Blue Book containing used refrigeration equipment.

Can you give us the name of a company publishing such information?

We will appreciate any information you can give us on this matter.

SIR PATTERSON,  
Education and Promotion Mgr.

Answer: For a discussion of the "Blue Book" problem turn to the "Questions" column on page 22 of this issue.

### Climax Unit Wrongly Identified as Lipman

Climax Machinery Co.  
121 to 153 E. Morris St.  
Indianapolis, Ind.

Dec. 3, 1937.

Publisher:

Mr. William J. Campbell, our president, and I have just concluded discussing your letter of Nov. 18 regarding the error in designation of an air-conditioning unit illustrated in your Manual No. A-1. Neither of us have any desire to work a hardship on your or your associates, and we do not propose adopting an arbitrary position in this matter. However, the difficulties confronting us as a result of this mistake are far more serious than you folks can realize.

No less than eight of our customers have communicated with us very pointedly about the illustration in connection with Lipman's name. Frankly, inferences are being made that we are making false representations in connection with our engineering and development. Some may wonder if we are "playing both ends against the middle."

To substantiate the seriousness of this thing, I am going to quote from a letter which Mr. Campbell received this morning from one of the largest merchandising concerns in the world, with which we have contracted to supply air conditioners throughout their entire organization. Quote: "Air Conditioning and Refrigeration News have advertised for sale a series of manuals on air-conditioning equipment". . . In one of these manuals, No. A-1, written by F. O. Jordan, they show on page 82 a picture of what seems to be our unit—only they have listed it as being designed by a man

by the name of Lipman. I thought you should get a copy of this manual and check into this situation". . . "This thing worries us. We cannot decide whether or not anyone is duplicating our equipment, or just what may have happened. I think we should find out all about it."

Mr. Cockrell, from the tone of this letter, it is apparent that our customers' attitude is strained and inquisitive, to say the least.

Already, I have a letter in the mails to our customer to the effect that we have been in touch with you to get the situation clarified. I am taking the liberty of sending your letter of Nov. 18 to our customer in hopes that it will establish the fact that we have kept faith, and that representations which we have made with respect to development and engineering will, in part, be substantiated.

We are of the opinion that definite steps are necessary to make a widespread correction of this error. You probably are better advised in such matters than we are. By way of suggestion, I believe a prominent announcement in AIR CONDITIONING AND REFRIGERATION NEWS would tend to clarify the situation quickly. We believe that this should be augmented with a letter to each recipient of Manual No. A-1, requesting that he make the correction on page 82 of the Manual in his possession. In the event that you concur in these suggestions, we would like to have an opportunity to look over the copy which you propose inserting in the publication, and also including the letter which you would send out.

Please be assured that we have no sinister thoughts in connection with this situation. Furthermore, we do not hope to lay finger of blame on any one individual. We simply want to have you folks do the things necessary to correct this mistake in the minds of the trade in general. We feel that these things should be done without any unnecessary delay.

DEANE CHIVINGTON.

### Sandy Pratt Is Booster For Refrigeration Week

California Refrigerator Co.  
1077 Mission St.  
San Francisco, Calif.

Nov. 27, 1937

Publisher:

I am very anxious to have a Refrigeration and Air Conditioning Week because all other industries that have put over such movements have made a great success out of such a movement. It also sells the movement to those in it and does create a demand for that particular kind of merchandise.

Especially in California where we have had Raisin Day (April 30), Sun-kist Orange Week, Canned Fruit Week, etc., we have created a great demand for the California products. In the industrial world they have had weeks for different industries and they have been a great financial success.

Because your magazine has such a world-wide circulation this magazine through you is the one to suggest and decide upon the proper date, which I suppose would be sometime next Spring. Would you please give this serious consideration and get started on it immediately and, of course, I would be glad to help you in California.

CLARENCE F. (SANDY) PRATT,

President.

### Handy, Compact Book

Baker Appliance Co.  
200 & 211 South Olive Ave.  
West Palm Beach, Fla.

Nov. 20, 1937

Editor:

We are in receipt of your Red Book No. 1430-1176 and write to express our appreciation of same, and believe it will fill a want that has been existing for some time.

We think the system of filing is fine and gives anyone a handy and compact reference for his needs.

T. S. BAKER

### Exhibitors Pleased with Shows, Goldberg Says

Herman Goldberg Co.  
Manufacturers' Representatives  
9 South Clinton St., Chicago, Ill.

Publisher:

You are undoubtedly aware that following the recent refrigeration conventions in Chicago, the writer sent questionnaires to all exhibitors who displayed their products at that time.

Purpose was to ascertain as much as possible the final reactions of the exhibitors as well as to obtain their suggestions which will be passed on to succeeding convention committees to improve future conventions of our industry.

More than 70% of the exhibitors returned the questionnaires to my office, and on nearly all points such as program, housing, setting of ex-

hibits, from 90 to 100% of those replying expressed approval on the way in which such matters were handled.

May we use your columns to express our sincere appreciation for the wonderful response given in attendance both by exhibitors and individual members of our industry at our Chicago convention.

HERMAN GOLDBERG, Chairman,  
General Convention Committees.

### Mr. Riginos of Athens Quoted Too Often

Radio Hellenic Company, S. A.  
9 Paparigopoulos St., Athens  
Nov. 11, 1937

Editor:

Reference is made to the article of the REFRIGERATION NEWS "Quotas Cut Sales to Greece" by John Strohm, published in the issue No. 16 of Aug. 18, 1937.

I was very much astonished indeed to see that this article contains information which although the writer may have collected from different sources, is attributing same to the interview I have had with him.

The

information I gave him and which I considered interesting for your magazine was all about the sale and organization of our refrigeration line—and nothing else. All other points are either the writer's guess-work or information collected elsewhere.

Kindly publish this letter in your magazine in order to restore matters.

EMM. RIGINOS

### Sees 'Made Easy' Manuals As Aid to Industry

Fairbanks, Morse & Co.  
Air Conditioners  
900 So. Wabash Ave., Chicago, Ill.

Publisher:

I have gone over your manuals on air conditioning rather carefully and find them most complete and very interesting. Quite a few of our branches have already bought these manuals as part of their library, and we are urging that the rest of the branches follow suit.

I certainly do hope that you make and can put up some kind of a fight against these bootleg air-conditioning schools who hand out these diplomas making an air-conditioning engineer in 24 hours. The field is already saturated with men who know nothing about air conditioning and are hindering its strides to produce better installations.

J. W. BOSTWICK,  
Manager, Air Conditioning Div.

### Mr. Frost (Appropriately) Heads Service Group

Refrigeration Service Engineers  
Society  
Magnolia Chapter  
P. O. Box 1323, Jackson, Miss.

Editor:

I would like to call your attention to an error in a recent issue of REFRIGERATION NEWS in the item headed "Cross Elected President Of Mississippi Service Men."

The above should be "Frost Elected President Of Mississippi Service Men," as his name is Joseph L. Frost. Also, J. P. Binns, is Treasurer, and J. B. Lawrence is Secretary.

H. E. MCADAMS

### He Doesn't Like to Get Behind on the News

1153 Green St., Glendale, Calif.

Dec. 1, 1937.

Wish to protest on delay lately in receiving my REFRIGERATION NEWS. Used to receive it on Mondays but lately Tuesday and this week Wednesday. Phoned the post office Tuesday noon and it had not been received there at that time. The boys over to the office still get theirs on Monday and I sure am behind on the news. Can you find out where the delay is? My subscription is paid for another year.

H. L. QUINN

### Handy and Educational</h3

## ENGINEERING

### Refrigerating System for 1938 Leonard Has Hermetically Sealed Unit & New Capillary

**DETROIT**—Prime new development in the refrigerating system which will be used in the Leonard 1938 household electric refrigerators is a hermetically sealed condensing unit, embodying a single-cylinder reciprocating-type compressor.

In principle this sealed unit consists of a simple single-cylinder compressor, the cylinder placed horizontally with eccentric connecting rod, piston, suction valve, and discharge valve.

#### INTEGRAL-CAST CYLINDER

The cylinder is cast integral with the main body casting into which the stator is pressed. This assembly in turn is pressed into a steel dome which is closed at the bottom by means of a steel cover.

Such a method of assembly is claimed to give good thermal conductivity from the motor stator to the outside of the sealed dome over which cool air is circulated. Dissipation of motor heat by metallic contact is said to insure long life of the motor windings by maintaining a relatively low motor temperature.

Compressor shaft is vertical, the rotor being mounted above the compressor. This construction makes it possible for the compressor to be operated under oil.

#### OIL SEPARATION

The suction intake is so placed that oil separation is assured under all conditions, and oil slugging is said to be eliminated. Motor terminals are under oil as an additional precaution against leaks.

No separate oil pumping system is used, but all bearing surfaces are flooded with a high grade of lubricating oil. Hardened steel to high lead bronze bearings are used.

Valve plates are of hardened steel, and the valve reed of Swedish steel. Crankshaft is of hardened steel. Bearings are small with ground finish, counter-balanced to produce minimum of vibration.

Both condenser and compressor have the benefit of forced-convection cooling. It is claimed that there is

a positive air circulation from cool air on the floor through condenser over compressor and up the back of the cabinet.

The condensing unit is enclosed in a soundproof compartment. There are no exposed compressor or electrical parts. Compressor is spring mounted. An intake and discharge muffler are included for quiet operation.

Positive oil circulation inside the compressor is said to result in transfer of heat from compressor cylinder to outside shell, with resultant lower operating temperatures.

A centrifugal oil separator in the motor rotor eliminates the possibility of oil getting into the compressor cylinder with the suction vapor, Kelvinator engineers claim.

#### SPLIT-PHASE MOTOR

A split-phase motor is used. An unloader on the compressor removes starting load on the motor until the motor is up to speed. A secondary pressure unloader in the compressor prevents the compressor from pumping up pressure beyond 450 pounds per square inch.

A non-mechanical refrigeration overload restrictor is used in the liquid line to prevent an overload on the compressor motor.

As regards the rest of the system, the most notable alteration is probably the addition of a capillary which is placed between the high side float and the cooling unit, at the cooling unit.

This capillary has two purposes. With the high side float mounted on the condensing unit, it is necessary to maintain the temperature of the liquid line from the high side float to the cooling unit above dewpoint to prevent sweating.

The pressure drop through the capillary is great enough to prevent sweating. The pressure drop through the capillary is great enough to prevent evaporation in the liquid line. It also prevents overloading of the motor during the first pull down and during the pull down after defrosting when the back pressure is high.

### Refinements Made in 'Meter-Miser' Condensing Unit for 1938 Frigidaires Are Described by Engineers

**DAYTON**—Several changes and refinements have been made in the "meter-miser" condensing unit used in the Frigidaire household electric refrigerator, and it is claimed by Frigidaire engineers that such changes have improved operating economy.

One of the main changes is the use of new "V-type" fins around the acorn-shaped case on the compressor. Use of the "V-type" fins is claimed to provide a more effective cooling surface, enabling the meter-miser to operate at lower temperatures, and consequently lower operating pressures.

#### INNER STRUCTURE

In the previous meter-miser the outer case consisted of two parts—a bottom part and a top part. The bottom part formed a base for the mechanism, while on the inside of the top part there was a bushing which held the mechanism in a vertical position.

In the 1938 model, the outer case also consists of two parts, but the entire mechanism is assembled in a separate, one-piece inner structure— independent of the outer case. None of the three moving parts are in contact with the outer case at any point.

#### MORE BEARING SURFACE

With this new type of construction, it is claimed that 95% more bearing surface is provided, and that more

positive alignment of all moving parts is made possible. Also, the entire mechanism can be assembled, checked, and tested before the outer case is welded around it.

Impeller on the new compressor is considerably wider than the one used previously, having a 40% greater sealing surface. In operation, oil is forced under the impeller to provide lubrication and to form a seal against the refrigerant vapor. It is said this eliminates any tendency for excess oil to "squeeze" under the impeller.

New divider block is approximately one half as wide as the one formerly used. This, it is claimed, will reduce the friction of the divider block against the impeller.

#### 'AUTOMATIC COOLING'

To cool the compressor, Frigidaire claims that "automatic cooling" is accomplished by means of the construction of the unit. Every part of the mechanism is compactly assembled in the all-metal inner structure. This in turn is in direct contact with the all-metal outer case. And tightly welded to the outer case are the all-metal "V-type" fins.

Thus there is a continuous metal-to-metal contact from all parts of the mechanism to the outer fins, which expel the heat into the surrounding air.

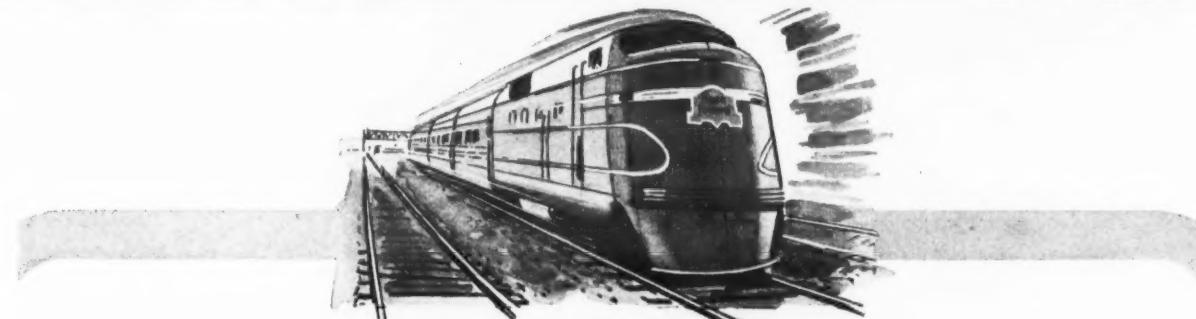
Some refinements have also been made in the condenser used in the Frigidaire household models.

## Business Conferences Mark Leonard Meeting



(1) Impromptu conferences are characteristic of all conventions, and these Canadian delegates got onto the idea very quickly. Here (left to right) are Crawford Keith, comptroller, Kelvinator of Canada, Ltd.; B. R. Pollack, Northern Electric Co., Montreal; H. M. Jackson, Shawinigan Water & Power Co., Montreal; and A. Tranen,

Woodhouse Co., Montreal. (2) A group of distributors is greeted by a district manager. Left to right are G. W. Hensel of the E. S. & E Co., Inc., Albany; Frank May; George B. Gray, Major Appliances, Inc., Miami, Fla.; and District Manager B. T. Roe. (3) W. T. Francis demonstrates the rearrangeable shelves for his boss, A. K. Sutton, and W. A. Patterson, all of A. K. Sutton, Inc., Charlotte, N. C. (4) Familiar faces at the convention were those of Walter Brous, sales manager, and Julius Klein, president, of the Klein Stove Co., who led their "Philadelphia gang" and who are here being greeted by N. C. MacDonald, Leonard district manager.



## Controls Guard SAFETY, ECONOMY and COMFORT

Accurate and dependable control is one of the outstanding characteristics of the new Chicago, Rock Island & Pacific Rocket Trains which open a new epoch in rail transportation.

Both the comfort of the Rocket's passengers and the safety of its powerful engines are protected by modern automatic control equipment.

It is significant that "Genuine Detroit" Controls were selected for both these purposes. The air conditioning system includes No. 783 Thermostatic Expansion Valve together with No.

250 Dual Pressure Controls. A No. 250 Series Temperature Control notifies the engineer of any excess motor temperature. Another similar unit operates an air damper for automatically cooling the motor. Two No. 250 RB-3 Controls, one on each of the engine's lubrication systems, inform the engineer immediately when the oil pressure drops below a stated safe minimum.

Consistent accuracy, long and de-

pendable service, are always assured in "Genuine Detroit" Controls.



**DETROIT LUBRICATOR COMPANY**

DETROIT, MICHIGAN, U. S. A. • 5900 TRUMBULL AVE.

NEW YORK, N. Y.—45 WEST 40th ST. • CHICAGO, ILL.—816 S. Michigan Ave.

DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Canadian Representative—RAILWAY AND ENGINEERING SPECIALISTS LIMITED, Montreal, Toronto, Winnipeg

## Adoption of Sealed Condensing Unit Marks Major Change in Leonard Refrigerator for 1938

(Continued from Page 1, Column 1) metal tray equipped with a grid lever arrangement which, it is claimed, releases a couple of cubes or the entire tray-full, without necessity of loosening the cubes under a water faucet.

Half the ice trays in the new Leonard line are equipped with the "Ice Popper" feature; the rest are equipped with rubber grids.

### STAINLESS EVAPORATOR

Evaporator on the new models is of stainless steel, a new development for Leonard, and is attractive and easy to keep clean. Front of the "Zero Freezer" door, name given the evaporator compartment, is fitted

with a chrome and green Leonard monogram, to add attractiveness to the cabinet interior.

Evaporator is claimed to have extra capacity for quick freezing of desserts and ice cubes. A tray-lifter is built in on all ice cube trays.

Interior shelf arrangement in the new models has been laid out with an eye to greater possible flexibility. Every one of the "Food Fit" shelves is of the sliding type, and the user may lift the entire shelf out, moving it up or down as desired. This provides room for storage of large items such as turkeys, large roasts, or watermelons.

### "MASTER DIAL"

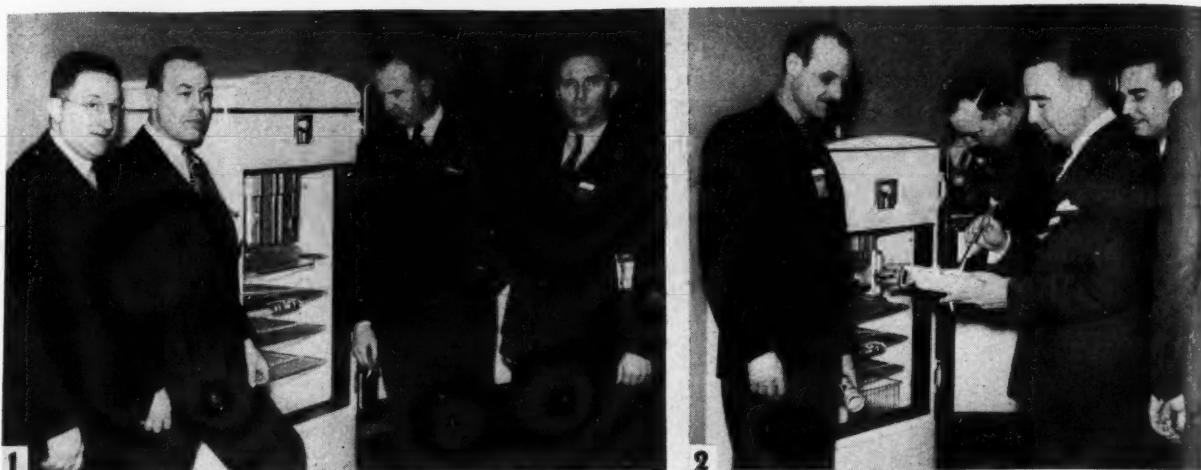
The "Master Dial," leading feature of the 1937 Leonard line, has been carried over to the new models. Users may "dial in" the amount of cold desired, whether for maximum freezing or for maximum operating economy.

The higher priced models have a thermometer built in the Master Dial, which enables them to check the temperature of their food compartment as they adjust the cold control. In the three special models, as well as the two smallest models of the standard line, the thermometer is built into the front of the middle shelf.

### VEGETABLE BIN

Other features include a vegetable bin at the bottom of the cabinet, which is said to hold more than a bushel of goods which do not require refrigeration; sliding vegetable crispier (plus a utility basket in the higher priced models), top of which is fastened to the shelf above; the Len-A-Dor foot pedal, which permits the housewife to open the cabinet without using her hands; a rearranging shelf on the cabinet door, designed to save extra steps; automatic

## Leonard Distributors Inspect Details of 1938 Models



(1) Closely inspecting one of the new Leonard models are Frank M. Beaucaire, president; and Lester Braun, Norman Carroll, and Arthur Hirschmann of Beaucaire, Inc., Rochester, N. Y., distributorship. (2) J. Henry (left) watches with avid interest as E. B. Latham of the New York distributorship of E. B. Latham Co. tries out the "ice popper" tray.

interior electric light, and large glass tray for chilling meat or defrosting.

Deluxe models also are equipped with a set of refrigerator dishes, for storage of leftovers, and a new type water bottle. The dishes may be used in the oven, saving use of an extra utensil.

All models are covered by a five-year protection plan.

Included in the 11 models in next year's Leonard line are three models in the "P" line, with porcelain finish,

manufacturers, for the most part, bought heavily in 1936 and early in 1937, in anticipation of price rises.

"We are simply paying for our over-purchasing early in 1936," Mr. Mason said.

Expressing his confidence that conditions will soon improve, Mr. Mason said that "business may slip a little further, but there are no facts to indicate that 1938 will not be a good year."

Somewhere around two million electric refrigerators will be sold during 1938, he predicted, calling attention to the fact that the industry's greatest gains have been made during depression years. Sales by the company, he added, have increased regularly for a period of 23 years, and he expressed confidence that the coming year will see still another gain.

After returning to the stage to announce that Charles W. Nash, chairman of the company's board of directors, was ill with a cold and unable to be present, Mr. Burritt, before turning the convention over to Mr. Petrie, reaffirmed his belief that 1938 will be a good year for sales of household refrigerators.

This year's farm income will approximate 10 billion dollars, a 10-year high, he declared; and industry depends approximately 50% upon farm income. Taxation also will be eased next year, he predicted.

### SPECIALTY SELLING NEEDED

The year ahead will call for a swing to specialty selling, Mr. Burritt said, in urging distributors to strengthen their selling organizations for the coming season. People will be more cautious, and will shop more before they buy, he said.

Mr. Petrie then took charge of the convention, and explained the research and work back of the new sealed "Glacier" unit. Nine years were spent in laboratory tests, he declared, and a survey of the market was made to determine the public's buying trends.

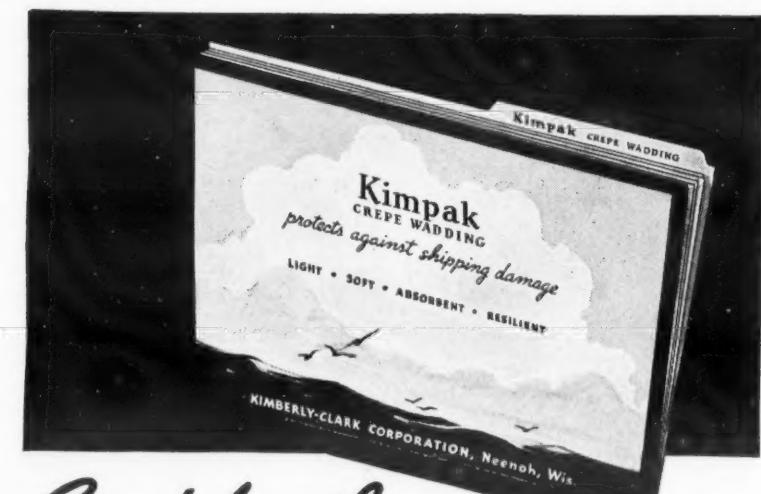
All this work preceded the field tests made in 609 homes all over the United States last summer, he stated. In the tests, the individual housewives were asked to keep detailed performance records of the units, their running time, amount of current used, and to report both interior

(Concluded on Page 15, Column 1)

### Leonard for 1938



The above picture shows the interior arrangement of Leonard's model P7-38.



## Send for this FREE ILLUSTRATED PORTFOLIO OF Kimpak CREPE WADDING

Learn how hundreds of foremost manufacturers use economical KIMPAC to guard products against all kinds of shipping damage

• KIMPAC is a soft, resilient crepe wadding that comes in rolls, sheets, and pads of various thicknesses. It is free of dirt, grit or other foreign substances. KIMPAC protects fine finishes, minimizes breakage during shipment. It gets your product to you

customers in perfect condition. Because it is easily applied, KIMPAC saves time, labor and money in packing or package protection....Send today for your copy of the new "Portfolio." Please make request on your letter-head, and address nearest office.

**KIMBERLY-CLARK CORPORATION**  
NEENAH, WIS.

8 S. Michigan Ave., Chicago 122 E. 42nd St., New York City 510 W. 6th St., Los Angeles



### 'Ice Popper'



Half of the ice trays in the new Leonard models are equipped with the "Ice Popper" which makes it possible to release a couple of cubes or the whole tray full by lifting the lever.

inside and out; five models in the "L" line, with Permalain exterior finish; and three special models in the "LS" line.

FOOD STORAGE SPACE

Food storage capacities range as follows: models of 5, 6, and 7-cu. ft. capacity in the "P" line; models of 3, 4, 5, 6, and 7-cu. ft. capacity in the "L" line; and models of 5, 6, and 7-cu. ft. capacity in the special "LS" line.

Ice-making capacity ranges from 120 cubes, or 12 lbs. of ice in the 7-cu. ft. models, to 40 cubes or 4 lbs. of ice in the small 3-cu. ft. model of the "L" line. Other models have an ice capacity of 80 cubes or 8 lbs. of ice per freezing.

### WELCOMED BY BURRITT

Leonard's convention, which was in charge of R. I. Petrie, Leonard sales manager, was opened with an address of welcome by H. W. Burritt, vice president in charge of sales of the Leonard division of Nash-Kelvinator Corp.

The year ahead will see greater opportunities, greater accomplishments, and greater profits for dealers and distributors, Mr. Burritt predicted. He called attention to Leonard's advantage in "men and thinking" by being part of the Nash-Kelvinator organization.

Collective ability and experience of the company's personnel give it an advantage in sizing up the past and planning for the future, he pointed out.

### TEMPORARY RECESSION

George W. Mason, president of Nash-Kelvinator, said that the dark side of the present business recession has been much over-emphasized.

"The present business recession," he said, "is only temporary. Business has been on a cycle of increase for the past four years, and there is no valid reason for believing that the present setback is anything other than temporary."

Current recession, he pointed out, started in the heavy industries, not in the retail industries. He explained that this is due to the fact that

## TAG Snap-on Controls FOR REPLACEMENT PROFITS

TAG Snap-on Controls with overload protection provide the essential element of dependability that you need in the profitable servicing of Domestic Refrigerators, Water Coolers and Beverage Coolers. Once adjusted, they permanently retain their temperature setting. Once set, the mechanism is locked against creeping. Send for your FREE copy of the TAG Catalog No. 1136-25 which describes these profit making Controls and other Test Equipment for Refrigerator Service.

CONSULT YOUR JOBEER ABOUT TAG CONTROLS AND TEST EQUIPMENT

C. J. TAGLIABUE MFG. CO. 550 PARK AVE. BKLYN-N.Y.

This Simple patent is the secret that has made THE CONCAVE SIDE a SILENT V-BELT . . . and here's the reason—



When a straight-sided V-belt bends around its pulley there is tension on the top of the belt and compression on the bottom. This makes the side walls bulge outward—as shown in figure 1, below.

The Gates Belt is built with a patented concave side. The bulge, due to bending, simply straightens the concave side to a precise fit with the sheave groove as shown in figure 2.

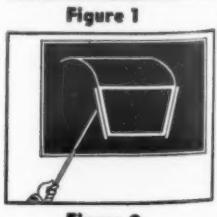
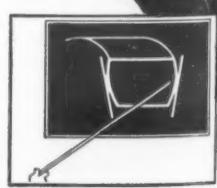
This exact fit naturally prevents slipping. No slipping means a SILENT belt, a belt that wears longer, a belt that does not heat and therefore does not stretch.

### BELT GUIDE — FREE

The Gates Belt Guide is the recognized national authority on correct belt fit for ALL Refrigerators, Washing Machines, Pumps, Stokers, etc., etc. FREE from your Jobber or the GATES RUBBER CO., Denver, Colo.

Write Today!

## GATES BELTS



## Anaconda Copper REFRIGERATION TUBES

Unusually Soft!

THE AMERICAN BRASS CO.  
FRENCH SMALL TUBE Branch  
General Offices: Waterbury, Conn.



## Leonard Distributors and Factory Executives Meet in Their Big Event of the Year



(1) J. J. Manning, Irvin Dalo, and M. E. Hegelman of the Capital City Distributing Co., Springfield, Mass., check their estimate of 1938 business. (2) Looks like something melodramatic is being hatched up here as Henry Burritt and "Bob" Petrie, who are the directing chiefs of the Leonard sales organization, get their heads together. (3) Paul Harris, general manager, Cohen Furniture Co., Peoria, Ill., appears cheerful enough while signing on the dotted line for Leonard District Manager Don Rulo, as E. O. O'Brien, retail sales manager of the Cohen Furniture Co., takes a peek at the figures. (4) E. R. Berkeley, Leonard district manager, has a pat on the back for W. E. O'Connor, president, Southern Wholesalers, Inc., Washington, D. C.

### Leonard Will Use 'Personalized' Sales Plan and Contests

(Concluded from Page 14, Column 5)  
cabinet and kitchen temperatures to the factory.

Slight troubles which arose during the test period were ironed out, he said, and at the end of the period the company had an exact picture of how its unit would perform in all sections of the country, under all climatic conditions, Mr. Petrie said.

#### FIELD TESTS ON UNIT

E. A. Seibert, service manager, next explained more about the field tests on the new "Glacier" unit. About 3,000 units had been built, torn down, and rebuilt, he said, during the nine years of experimental work.

Case histories of each of the 609 units put on field test were obtained, he stated. This included, in addition to detailed performance charts, statistics regarding the family using the refrigerator, and exact figures on operating costs in each community. Daily weather reports from each of the 609 communities, he said, also had been obtained.

Mr. Petrie next returned to show the features of the new 1938 Leonard models. As each feature was highlighted on a moving panel in the center of the stage, a "flash-back"

### Key Specifications of 1938 Leonard Line

Model No.	Capacity Cub. Ft.	Shelf Area Sq. Ft.	No. Ice Trays	No. of Cubes	Lbs. of Ice	Exterior Dimensions— (Inches)		
						Height	Width	Depth
P7-38	7.13	15.49	6	120	12	65%	33½	25%
P6-38	6.09	14.03	4	80	8	62%	32½	25%
P5-38	5.12	10.72	4	80	8	60%	29½	25%
L7-38	7.13	15.49	6	120	12	65%	33½	25½
L6-38	6.09	14.03	4	80	8	65%	32½	25½
L5-38	5.12	10.72	4	80	8	60%	29½	25½
L4-38	4.10	9.67	2	40	4	51¼	24	25%
L3-38	3.14	7.48	2	40	4	48	24	25%
LS7-38	7.13	15.49	6	120	12	65	32½	24%
LS6-38	6.09	14.03	4	80	8	61¾	31½	24%
LS5-38	5.12	10.72	4	80	8	59¾	29½	24%

at the side revealed how that particular feature might be effectively demonstrated to a prospect by the salesman.

Showing of the complete line of 11 models closed the morning session.

Walter Jeffrey, Leonard advertising manager, took charge of the afternoon session, which was devoted to an exposition of 1938 advertising, sales promotion, and finance plans.

#### NEWELL EXPLAINS PLANS

In a discussion preceding his outline of the company's advertising plans for the coming year, H. W. Newell, vice president of Geyer, Cornell & Newell advertising agency, said there are three steps in any campaign to sell refrigerators:

1. Get dealers interested.
2. Get the housewife in front of the refrigerator.
3. Get salesmen to tell the sales story.

To surmount the first of these barriers, Leonard will go to dealers on a "person-to-person" basis next year, Mr. Newell said. He revealed that 35,000 personalized messages from distributors and field men will go to dealer prospects, to aid distributors in bettering their dealer coverage.

These personalized messages will carry the photograph of the individual distributor, and will be signed by him; the same will be true of the messages from field men to dealers.

#### LIMERICK CONTEST

To get the housewife in front of the refrigerator, Leonard will feature in its early 1938 advertising a \$9,500 limerick contest; a first prize of \$4,500 and 88 other cash and merchandise awards.

Advertisements will feature a cartoon, designed to bring out one of the Leonard features, and will include four lines of the limerick. The prospect will be invited to fill in the last line.

Ten cartoons will be in the series; and each of the cartoons will play up a Leonard feature. To get the cartoon booklet, the housewife must call at her dealer's showroom. That is his cue to give a detailed demonstration of Leonard's features, thus accomplishing the third in the desired three steps to the sale.

Advertising copy, in addition to spotlighting the prize limerick contest, will point to Leonard as "the biggest bargain in refrigerators today," and will emphasize one of its 10 selling features in each advertisement.

#### NEWSPAPER CAMPAIGN

Local newspaper advertising also will feature the contest, and dealers may tie-in with the national contest with local competitions of their own,

sales presentation easier for the retail salesman. Special albums on both cabinet and refrigerating unit features are a part of the display.

Added incentive will be provided for salesmen next year through changes in the set-up of cash and merchandise awards in Leonard's Crest Club, Mr. Jeffrey said.

Sam C. Mitchell, director of advertising for the Leonard and Kelvinator divisions of Nash-Kelvinator Corp., urged the distributors not to overlook the small town market in their search for adequate dealer coverage.

#### SATURATION SURVEY

A survey recently made by the company in four small Ohio towns had revealed a saturation of less than 20%, he said. Addressing himself to distributors' field men, Mr. Mitchell said:

"Take time to tell your sales story in the smaller towns; you'll find that business there is easier to get, because there's less competition than in the cities."

Finance plans for the immediate future will not differ much from those offered dealers this year, said

G. V. Egan, vice president of Refrigeration Discount Corp., Leonard-Kelvinator finance agency.

Special plans for next summer's selling season probably will be made, Mr. Egan said, but the company as in the past will make no announcement until plans are ready for release, because conditions existing at the time will decide the exact provisions of the arrangement.

#### DEALER COVERAGE

In his final summary, Mr. Petrie urged distributors to be aggressive in their efforts for better dealer coverage, especially in the smaller towns. However, small town coverage is not to be obtained at the expense of city dealer representation, he declared.

"Go after the dealers who are hard to get," he advised; "you'll find they're the ones who will prove most valuable to you."

Careful attention to dealer presentation showings was advised by Mr. Petrie. Small group dealer meetings, he advised, are likely to work out more advantageously than elaborate "blanket" showings at which none of the dealers get sufficient attention.

### The Distributor Who Sells the

## Copeland REFRIGERATION LINE

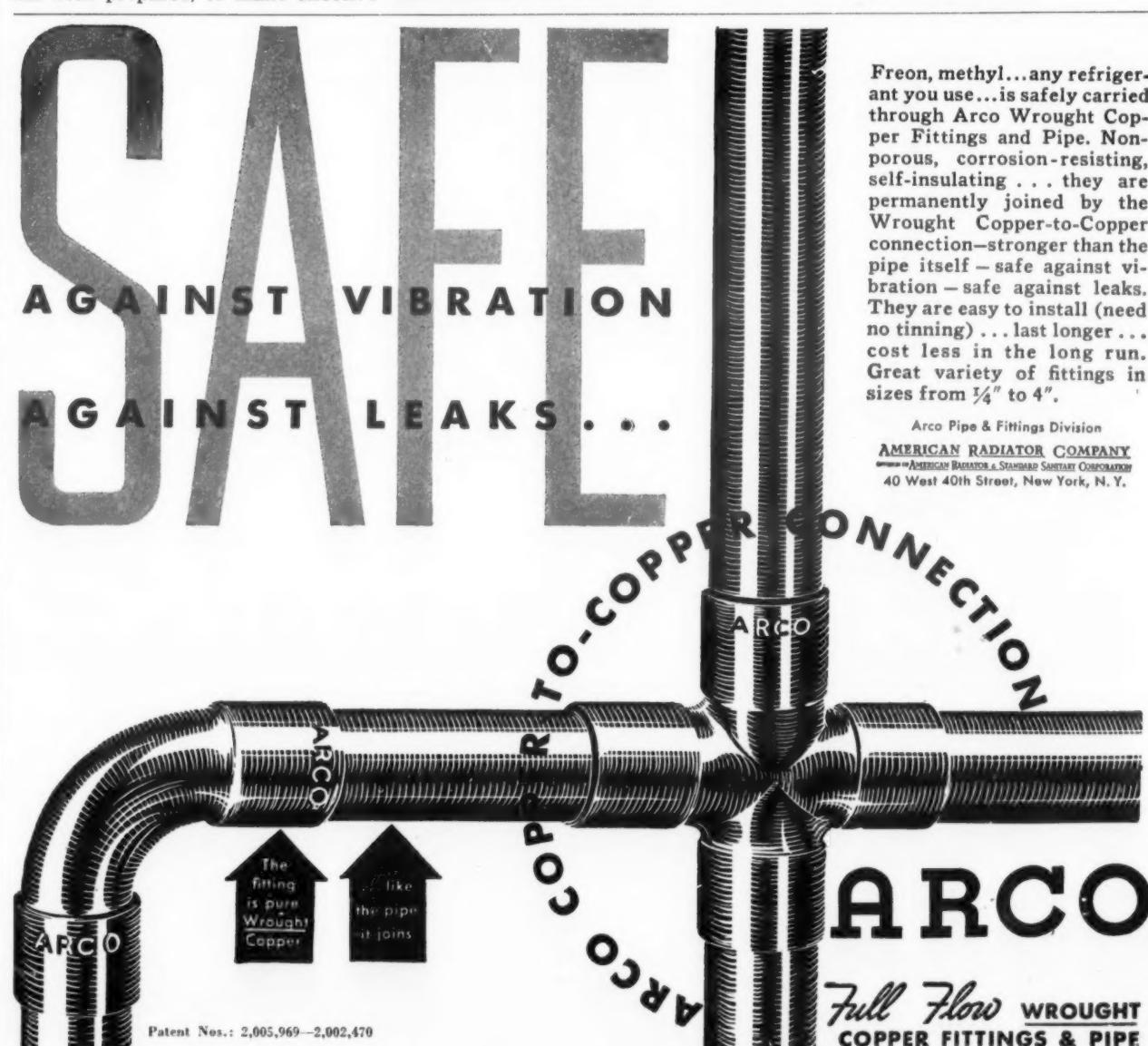
### IS BUILDING GOOD-WILL FOR YEARS TO COME!

It is just good business foresight to sell your customers a quality-built Copeland product. Whether you sell a Copeland Household Refrigerator, Commercial Refrigeration, Washer or Ironer, you are wisely building up a backlog of long-time customer satisfaction that will pay you dividends in continued patronage for many years.

Write for Sales Plan  
COPELAND REFRIGERATION CORPORATION  
Holden Ave at Lincoln—Detroit

Freon, methyl...any refrigerant you use...is safely carried through Arco Wrought Copper Fittings and Pipe. Non-porous, corrosion-resisting, self-insulating...they are permanently joined by the Wrought Copper-to-Copper connection—stronger than the pipe itself—safe against vibration—safe against leaks. They are easy to install (need no tinning)...last longer...cost less in the long run. Great variety of fittings in sizes from  $\frac{1}{4}$ " to 4".

Arco Pipe & Fittings Division  
AMERICAN RADIATOR COMPANY  
AMERICAN RADIATOR & STANDARD SANITARY CORPORATION  
40 West 40th Street, New York, N. Y.



## MAJOR APPLIANCES

**Shipments of Cleaners  
for 10 Months Total  
1,469,746 Units**

CLEVELAND—Shipments of vacuum cleaners by members of Vacuum Cleaner Manufacturers' Association during the first 10 months of this year totaled 1,469,746 units, within 41,207 of the number sold during all last year. The 10-months' figure is an increase of 254,449 units over the same period of 1936.

USE THE ZENITH  
REFRIGERANT FILTER

FOR SULPHUR DIOXIDE  
FREON OR METHYL CHLORIDE  
REFRIGERATORS

Because Zenith elements provide finer spacings (.002") than any asbestos sack or wire screen filter.

Easily Installed  
Easily Cleaned

Permanent Protection  
No Wool or Asbestos to Rot and Wear Out  
Corrosion Proof—  
Leak Proof  
Ample Capacity

Positive protection against dirt in Expansion Valves, Solenoid Valves, Capillary Tubes and other liquid control devices.

ZENITH CARBURETOR CO.  
Subsidiary  
BENDIX AVIATION CORP.  
Detroit, Michigan

**TEMPIRITE**  
INSTANTANEOUS  
BEER and WATER COOLERS  
Detroit Michigan

**AIR CONDITIONING  
AND REFRIGERATION**



"KEEPING STEP  
WITH INDUSTRY"

That is the function of this reliable school that prepares men properly for the Air Conditioning and Refrigeration field.

A resident school that meets every requirement of the industry in its practical and technical training. Superbly equipped—9000 square feet of laboratories and classrooms. Day and Evening Courses. Request Booklet T.

**ATTENTION EMPLOYERS!**

Call on us for the men you need! Our files of competent men are available. No fees to either employer or employee...



TECHNICIANS INSTITUTE  
244 WEST 14TH STREET NEW YORK

ASK FOR NEW  
BULLETIN 144C   
"T" Series Thermo Valves  
ALCO VALVE CO., Inc.  
ST. LOUIS, MO.

**BRUNNER**  
Send for the New  
**REFRIGERATION CATALOG**  
Seven Models of Compressors  
Fifty-eight Models of High-sides from  $\frac{1}{4}$  H.P. to 15 H.P.  
BRUNNER MANUFACTURING CO.  
UTICA, N.Y.

**Sales of Washing  
Machines in Oct.  
Drop 24.6%**

CHICAGO—Washing machine sales for October totaled 116,001 units, a drop of 24.6% from the 153,852 units sold during the same month last year, according to figures compiled by Washing Machine Manufacturers Association. Sales for the 10-month period dropped 1.5%, the total being 1,510,755 units, compared to 1,532,914 sold during the first 10 months of 1936.

A continued demand for higher priced washers was indicated, as 46% of all October shipments were units retailing at \$70 or more.

Ironer shipments for the month also were down, only 12,447 shipments being recorded, against 17,394 for October, 1936, but despite this slump sales for the 10-month period showed a 4.1% increase over the past year. Ten-month ironer shipments this year totaled 160,130, compared to 153,807 for the first 10 months of 1936.

### Electric Range Sales Off 9% in October

NEW YORK CITY—October unit sales of electric ranges by 12 manufacturers reporting to National Electrical Manufacturers Association totaled 22,134, a decline of 9.2% from the 24,376 units sold during October, 1936, according to Nema statistics.

October shipments this year were valued at \$1,650,414, an average price of \$74.56; shipments made last October were valued at \$1,708,215, an average price of \$70.08.

Shipments made during the first 10 months of the year, however, showed a decided increase over 10-month shipments last year. There were 333,357 units, valued at \$23,814,253, shipped during the first 10 months of this year, compared to 252,505 units, valued at \$17,538,448, during the corresponding period of 1936.

Average unit price for shipments during the first 10 months was \$71.44; last year this price was \$69.46.

Stocks of discontinued models on hand at the end of October this year were reported by seven manufacturers as 1,079 units, compared to 3,052 units on hand at the end of last October.

### Toledo Utility Organizes Electric Home Bureau

TOLEDO—A new department known as the "All Electric Home Bureau" and headed by H. E. Carney has been established by Toledo Edison Co. to assist builders, architects, electrical contractors, and prospective home builders in getting an efficient set-up for electrical service.

The bureau, which is a member of the National Kitchen Planning Service, also will be of service to the public in matters of remodeling and rewiring old homes.

### Bendix Laundry Line Shown To Indiana Dealers

FORT WAYNE, Ind.—The Great Lakes Distributing Co. was host at its branch office here to 35 dealers of northeastern Indiana for the first showing and demonstration of the new Bendix home laundry machine. The demonstration was conducted by W. M. DeWitt, South Bend, district manager for Bendix Home Appliances, Inc.

### Bendix Washers Approved For EH & FA Financing

WASHINGTON, D. C.—Electric Home and Farm Authority has notified all cooperating power companies that Bendix washers, Kadette radios, and Bell feed grinders are now eligible for the Authority's financing plan.

## Distributors Check New Frigidaire Products



Frigidaire distributors and branch sales officials see the new models, with factory executives providing the "sound effects."

(1) "A baby could work this device," says Frigidaire's Chief Engineer S. M. Schweller (right) as he explains to S. A. Long, Wichita, Kan. distributor, just how the new Quickube tray operates.

(2) "These sliding shelves look familiar," says Al Hattenbach, Pitts-

burgh distributor, as he gets his first look at the new Frigidaire electric range.

(3) "Boy! Am I going to have fun with this," ejaculates Clark Wheeler, Indianapolis distributor, as he starts to take the range oven apart.

(4) "And that," says Frank R. Pierce, manager of Frigidaire's household division, "is the time signal." Jerry Collins (center) manager of the New York district, and Charles Law-

son (right) household sales manager, listen for the bell.

(5) "That's what I call capacious storage tray," declares R. F. Callaway (right) manager of the Detroit branch, as he demonstrates it to R. F. Trant, distributor in Norfolk, Va.

(6) "She's sure got a neat-looking instrument board," says Larry Skutt, Chicago district manager (right), while E. B. Dorsey, Twin Cities manager, looks into the deep-well cooker.

### 30,000 Change to Electric Cooking Each Month, Cameron Says

DETROIT—More than 30,000 housewives are changing to electric cookery every month, estimates Ralph C. Cameron, sales manager of household appliances for Kelvinator division, Nash-Kelvinator Corp., judging by aggregate sales of electric ranges alone.

"Advantages of improved electric refrigeration," Mr. Cameron continues, "are being introduced into more than 175,000 homes each month, and more than 145,000 home laundries are being electrified with washing machines and ironers. In addition, more than 25,000 families are installing electrically controlled or operated heating plants every month."

Important factors in this rapid increase of electrical appliances in American homes, Mr. Cameron points out, particularly in penetrating the lower income market, are reduced power rates and reduced cost of electrical equipment.

### Crane Co. Issues Catalog On Cabinet Sinks

CHICAGO—Crane Co., manufacturer of all types of kitchen and bathroom fixtures, has issued a folder illustrating and describing its line of cabinet sinks.

Available in a number of sizes, styles, and prices, these sinks are especially designed to fit into the "planned" kitchen of the modern home.

### Passow Is Made Chief Radio Engineer of F-M Co.

INDIANAPOLIS—Edward B. Passow, assistant chief radio engineer of Fairbanks, Morse & Co. for the past three years, has been appointed chief radio engineer of the company, according to an announcement by W. Paul Jones, general manager of the home appliance division.

Mr. Passow is a graduate of Purdue university, majoring in electrical and radio engineering.

### TRAINED MEN Furnished FREE!

Save time, trouble and money when you need men. Use the U.E.I. Free Placement Bureau. No charge to you or prospective employee. It is our contribution to the industry.

We have U. E. I. trained men available in all parts of the country. For 10 years our graduates have made good as shop mechanics, and as installation and service men in leading organizations.

Next time you need a competent man, phone, write, or wire the U. E. I. Free Placement Bureau.

**UTILITIES ENGINEERING INSTITUTE**  
404 N. Wells St. Established 17 West 60th St.  
Chicago, Illinois 1927 New York, N.Y.



MERCHANT & EVANS CO.  
Phila., Pa., U.S.A. Plant at Lancaster, Pa.

## Artic

REG. U. S. PAT. OFF.  
(DU PONT METHYL CHLORIDE)

COAST-TO-COAST DISTRIBUTION—The standard Methyl Chloride. Stocked in standard and special 20-lb. containers for prompt delivery at 65 stock points in 46 cities; also Cuba, Mexico and Hawaiian Islands.

DUPONT  
REG. U. S. PAT. OFF.  
THE R. & H. CHEMICALS DEPARTMENT  
E. I. DU PONT DE NEMOURS & CO., INC.  
WILMINGTON • DELAWARE

Write for free copies of "ARTIC Service News" containing list of authorized distributors and stocking points, and current information about refrigeration.

**Anaconda Copper**  
REFRIGERATION TUBES  
They Flare without cracking  
THE AMERICAN BRASS CO.  
FRENCH SMALL TUBE Branch  
General Offices: Waterbury, Conn.



## SERVICE METHODS

### Data Given on Contents and Size of Refrigerant Cylinders for Ammonia And Carbon Dioxide

Charles Fornsel  
P. O. Box 1071  
Balboa, C. Z.

#### Service Editor:

I have received your Master Service Manuals on Commercial Refrigeration Nos. C-1 and C-2, also Air Conditioning Made Easy, Manuals Nos. A-1 and A-2.

To date I have not received Manuals C-3 and A-3 and would appreciate your advice as to when they will be delivered.

I have looked through your Manuals and you can quote me that they are the best that money can buy. Even as an old timer in the business I've made good use of the information they contain.

In Chapter 4, Manual No. C-2 on Refrigerant Cylinders and Valves, you give detailed specifications on sizes and capacities of  $\text{SO}_2$  and methyl chloride cylinders. Would you kindly give me similar information on Freon-12, carbon dioxide, and ammonia cylinders?

Also could you send me a simple formula on how to determine the correct size liquid receivers and condensers for use in the tropics? We have several condensing units to revamp and are of the opinion that the present condensers and receivers are too small for use in extremely hot climates.

CHARLES FORNSEL

**Answer:** Thanks for your kind remarks on our refrigeration and air-conditioning manuals. They were written by old-timers and we will feel amply repaid for our efforts if they continue to prove of value to old-timers and beginners alike.

Air Conditioning Made Easy, Manual No. A-3, is now off the press and delivery has been made on all orders on file. Master Service Manual on Commercial Refrigeration No. C-3 is not off the press as yet, but will be ready in about a month.

You will find the specifications on Freon-12 cylinders on page 70 of Master Commercial Manual No. C-3.

Taylor-Wharton Iron & Steel Co., manufactures high-pressure cylinders and has supplied us with the following specifications on  $\text{CO}_2$  cylinders:

$\text{CO}_2$ Capacity In Lbs.	Outside Diameter (In.)	Height (Average) (In.)	Water Capacity (Cu. In.)
50	8½	51	2,360
20	5¾	51	930
20 (Squat)	8½	21½	875
10	5¾	26	436
7½	4½	26½	326
5	4½	21¼	226

$\text{CO}_2$  cylinders are made to conform with Interstate Commerce Commission Specification 3A 1800 and have a test pressure of 3,000 pounds per square inch. Cylinders are limited by I.C.C. specifications to a  $\text{CO}_2$  filling capacity of 68% of the weight of the water capacity of the cylinder, except for 50 and 20-pound sizes.

$\text{CO}_2$  cylinders are tapped  $\frac{1}{4}$  inch female pipe with a  $\frac{1}{4}$  inch taper per foot. Valves for use with  $\text{CO}_2$  cylinders are equipped with a frangible disc safety device, having bursting pressure of 2,600 to 2,800 pounds per square inch. A fusible metal backing or support in a  $\text{CO}_2$  cylinder valve safety device is not allowable under I.C.C. specifications.

E. I. du Pont de Nemours & Co., Inc., National Ammonia Division,

Philadelphia, Pa., who have distributed ammonia for many years, have supplied us with the following specifications on their large, standard, and small ammonia cylinders:

Size	Average Ammonia Content (Lbs.)	Out-side Diam. (In.)	Over-all Length (In.)	Water Capac. (Lbs.)
Large	150	12	84	300
Standard	100	10	84	200
Small	50	10	46	100

According to Interstate Commerce Commission's specifications an ammonia cylinder can be filled to but 54% of its water weight capacity. Where cylinders are filled with the allowable weight of ammonia the liquid expands with increasing temperature and will completely fill the cylinder at 130° F. Any temperature increase above 130° F. with a normally filled cylinder will cause a tremendous hydrostatic pressure to develop.

It can readily be seen that overfilling and/or overheating a cylinder is dangerous and should always be avoided.

The average thickness of an ammonia cylinder side wall is 0.19 inches. They are designed for a working pressure of 250 pounds per square inch, whereas the normal operating pressure range is well under 150 pounds per square inch.

Ammonia cylinders or valves (used in the United States) are not equipped with a safety device. Reason advanced by Col. Guy E. Carleton, assistant chief inspector, Bureau of Explosives, is that a suitable safety device was not available and for that reason is omitted from ammonia cylinders.

National Ammonia Division advises that on several rupture tests made on this cylinder that bursting did not occur until a pressure of approximately 2,500 pounds per square inch was reached. This indicates a large factor of safety.

Regarding condenser capacities, an article which appeared on pages 12 and 13 of the July 21 issue of AIR CONDITIONING AND REFRIGERATION NEWS included data on condenser capacities and approximate operating head pressure charts. No doubt this is the information you desire.

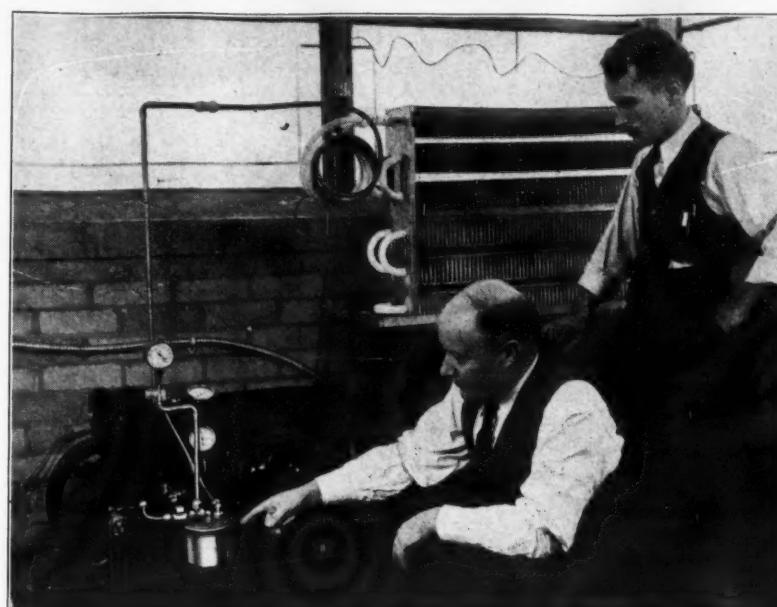
There is no apparent reason why the liquid receiver capacity should be increased for hot weather operation. To obtain suitably low operating head pressures (using an air-cooled condenser) it is possible that the condenser size should be increased, that is, a condenser recommended by the manufacturer for a 1½-hp. unit should be applied to a 1-hp. condensing unit, etc.

The combination water and air-cooled hook-up mentioned in the July 21 article should provide an efficient condensing method for tropical weather.

#### Concealed Adjustment Used On Air Switch Control

BELLWOOD, Ill.—A concealed adjustment type of air switch control, the control knob and scale plate of which can be reached only by removing the outer case of the control, has been development by Jefferson Electric Co. for use in places where unauthorized or easy adjustment of thermostats is not desirable.

## Testing New Oil Separator



Jim Haviland (pointing to device), chief engineer and sales manager, and Paul Shoemaker, president of the G. & S. Tool Co., look over a working model of the new oil separator for refrigeration systems which they have developed.

### Detroit Tool Company Builds Oil Separator

DETROIT—G. & S. Tool Co., machine tool manufacturer here, has entered directly into the refrigeration products field with its G. & S. oil separator, announces J. B. Haviland, chief engineer and sales manager of the firm.

Purpose of this oil separator is to prevent the lubrication oil used in refrigeration compressors from mixing with the refrigerant and thus be-

ing carried into other parts of the system.

The G. & S. separator consists of a specially designed strip-metal baffle located in the tube through which the refrigerant passes from the compressor to the condenser, and a fine wire screen which surrounds the needle valve.

The baffle is said to separate most of the oil from the refrigerant gas long before it reaches the screen, but the screen, in turn, breaks it up again. This screen also prevents any dirt which may be in the system from clogging the needle seat.

This separator was designed by Harry Schultz, a refrigerator repair man who had noticed the difficulties caused by leakage of lubricating oil into the refrigeration system, but when Mr. Schultz died some three years ago, Mr. Haviland began working in his spare time to develop the separator for G. & S. Tool Co.

Mr. Haviland, an experienced refrigeration man who was associated with both Absopure and Nizer in the earlier days, has been associated more recently with two Detroit refrigeration supply jobbers, J. M. Oberc and W. C. DuComb. Last month Paul Shoemaker, president of G. & S. Tool Co., named Mr. Haviland chief engineer and sales manager of the company.

The G. & S. oil separator is available at present only in sizes suitable for use with commercial refrigeration equipment, but the company is working on a smaller unit for household machines.

The company plans to sell the separator to manufacturers of original equipment as well as to refrigeration jobbers.

### Consolidated Edison Co. to Stop Making Free Repairs On Appliances

NEW YORK CITY—After the first of the year, Consolidated Edison Co. and its affiliated companies will no longer furnish free minor repair service on appliances owned by customers on its residential lines, but instead will turn over such service calls to approved cooperative dealers, according to E. F. Jeffe, vice president in charge of sales.

The utility will continue, however, to give service on electric ranges sold on or before Dec. 31.

## How to Select and Install Air Conditioning Systems

By T. H. Mabley

THIS is a series of 25 articles on AIR CONDITIONING, written by Mr. T. H. Mabley, chief engineer, Mechanical Heat & Cold, Inc., Detroit, Mich. These articles are "case histories" of installations engineered by Mr. Mabley in his regular work as chief engineer for a large Detroit air-conditioning contractor and distributor. They should be of real value to any individual who has any part in the estimating, engineering, and installation of air-conditioning equipment—also to prospective purchasers or users of air-conditioning equipment.

The "cases" start with the simpler installations such as a single office and continue on through to more complicated installations, such as process jobs and the air conditioning of auditoriums and department stores.

Simple methods are given for calculating heat gain and loss for each job, determining design conditions, selecting equipment, and locating and installing equipment. Direct and indirect systems are used in these typical installations and the advantages and disadvantages of each method are given.

While all the known fundamental functions of air conditioning are desirable, there are certain applications and conditions where some of the functions are not considered necessary nor economical to install and operate. High relative humidity, such as may be obtained with winter humidification might cause show windows in a store to cloud up, thus impairing the display. For such an application the summer functions are purchased, and winter humidification is omitted.

In a process job all of the functions may be utilized as the conditioning equipment is required to maintain predetermined year-around temperature and humidity within close limits.

Conditioning an auditorium where large crowds of people will be present for two or three hour periods has its particular problem while the design limits for a department store with its heavy electric light load require expert attention. All of these and other factors that must be considered are discussed for the individual application, and the selection of equipment is based upon the load calculations for predetermined design conditions.

The procedure followed on these 25 typical jobs may be studied by the contractor, dealer, engineer, etc., who is figuring a job and much valuable information may be gained that may save hours of time and possibly prevent expensive mistakes.

Business News Publishing Co., 5229 Cass Ave., Detroit

**WEATHERHEAD**  
**DEHYDRATORS** for drying  
**SCALE TRAPS** for catching  
**FILTERS** for straining  
**GENUINE WEATHERHEAD**  
**REFRIGERATION PARTS**

WEATHERHEAD • 300 E. 131 ST. • CLEVELAND, OHIO

136 pages  
\$1.00 per copy

**Sturtevant Issues Catalog  
On Air Conditioners**

HYDE PARK, Mass.—Sturtevant Cooling & Air Conditioning Corp., division of B. F. Sturtevant Co., has recently issued a catalog covering its complete line of air-conditioning units.

Included in the catalog are descriptions of the company's unit air conditioner, humidifier, speed heaters and heater-cooler, railway car conditioner, suspended-type units, and the Sturtevant Filticooler and Rexvane speed heater, the latter two for installation in industrial plants.

**Winter System Installed  
In Optometry College**

EATON, Ohio—Hughes Heating & Air Conditioning Co., Dayton Air-temp distributor, has installed a winter heating and air-conditioning system in the new building of the College of Syntonic Optometry here.

**Trane Forms Transportation  
Air-Conditioning Dept.**

CHICAGO—A special transportation air-conditioning department has been established here by the Trane Co., La Crosse, Wis., under the direction of Jim Whalen, of the Trane Chicago branch, and Jerry Hickey, of the La Crosse air-conditioning department.

Increasing demand for air conditioning in railway trains, buses, trucks, and similar transport vehicles led to the establishment of the new department, company officials state.

Trane has air conditioned more than 1,000 railroad cars in the United States, and installed the equipment in the Illinois terminal, only air-conditioned suburban railroad in the country, it is stated.

Trane coils are used in the first air-conditioned buffet car in the British Empire, on the Victorian State Railways, Australia. Coaches on the Kowloon-Canton railroad in south China are Trane equipped.

**THE BUYER'S GUIDE**

**MARSH Refrigeration Instruments**

**Buy service—not service calls**

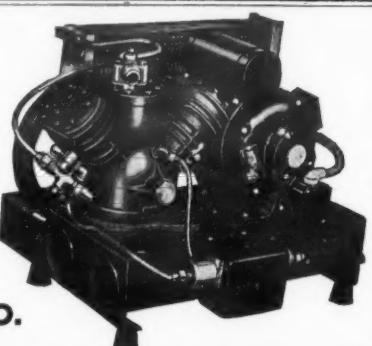
The Marsh merkustat electrical cut-out has earned its reputation as the motor control that always works right. It is constructed with bronze bourdon tube for any pressure medium that will not corrode brass, and with steel bourdon tube for ammonia and carbon dioxide. When safety is at stake only the best equipment is good enough—and that means Marsh. Write for new catalog describing Marsh gauges, thermometers and recorders.

JAS. P. MARSH CORPORATION  
2087 SOUTHPORT AVENUE, CHICAGO



WRITE FOR  
NEW CATALOG

**CHIEFTAIN**  
QUALITY-BUILT  
COMPRESSORS and  
CONDENSING UNITS  
The CHIEFTAIN line represents precision manufacture and proven service, and is designed for all domestic and light commercial applications.  
Sizes range  $\frac{1}{2}$  to  $\frac{1}{2}$  HP.  
Write for prices.  
**TECUMSEH PRODUCTS CO.**  
TECUMSEH, MICH.



**HENRY Dehydra-Strainer**  
Combination Dehydrator  
and Strainer  
TYPE  
733  
WITH ASBESTOS SACK  
**HENRY VALVE CO.** 1001-19 N. SPAULDING AVE.  
CHICAGO, ILLINOIS  
STOCKED BY LEADING JOBBERS

With dispersion tube. Dehydrant is located inside asbestos sack supported in turn within a fine mesh brass screen. 2" O. D. x 12" long flanged brass shell. Dehydrant capacity 20.5 cu. in. Weight 3 $\frac{1}{2}$  lbs.

**FOR SERVICE REPLACEMENT  
& NEW INSTALLATIONS**  
**M&E**  
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**AIR CONDITIONING**

**Article in Forbes Magazine Summarizes  
5 'Within-the-Industry' Problems  
Facing Air Conditioning**

NEW YORK CITY—With the public still inclined to think of air conditioning entirely in terms of summer cooling, the industry is approaching its goal and is changing from the expensive luxury of yesterday to the necessity of today, writes John Elting in the Nov. 15 issue of Forbes magazine.

"Complete air conditioning, of course, includes not only cooling, dehumidifying, circulating, ventilating, and cleansing of indoor air during the summer months, but warming, humidifying, circulating, ventilating, and cleansing of the air in the winter as well," Mr. Elting points out.

Public acceptance of air conditioning is increasing, production is rising, and sales are booming, the writer says, in his approach to the "growing pains" of the industry. Markets are expanding, and the industry is moving into the \$100,000,000 class. But it is not yet a major industry.

**FEEL 'GROWING PAINS'**

"With rapid growth," Mr. Elting goes on, "air conditioning is feeling the 'growing pains' common to other expanding industries. It also faces totally new difficulties which require new and ingenious solutions."

The public, he continues, does not yet appreciate the complexity of these problems, and as a result is sometimes impatient over deficiencies and delays.

"Air conditioning is not, and for a long time to come, will not be a standardized industry," he declares. "It involves installation under physical conditions of infinite variety, requiring the use of parts of widely differing sizes and types, and involving technical engineering skill of a high order."

**INDUSTRY PROBLEMS**

Some of the problems facing the industry, as disclosed by manufacturers, are, Mr. Elting says:

1. Lack of trained men. This, says Mr. Elting, is a universal complaint. More men are needed who can make the equipment, sell it, install it, and operate and service it to the satisfaction of the buyer.

Scarcity of trained men, the writer contends, is incident to the development of a new science. Knowledge of heating and ventilating, he says, does not necessarily mean a knowledge of air control in the fullest sense of "air conditioning."

This need is not so acute in the field of production. "Air-conditioning equipment," says Mr. Elting, "involves no new technical devices that require specially trained labor. It is simply a reorganization of the old units—filters, washers, fans, coils, and so on—assembled to produce a new result."

**SPECIAL SALES TRAINING**

In the channels of distribution, however, men of special training are an absolute necessity.

A salesman contacts a prospective customer and engages his interest. The salesman is asked to estimate the job. This involves a problem of

engineering which the salesman, without special training, is not qualified to solve, and the services of an engineer are needed. Some companies send out both a salesman and engineer to engage the prospective buyer.

Majority of manufacturers, Mr. Elting says, follow one of two courses: either they provide the salesman with training in the fundamentals of engineering, or they train air-conditioning engineers in salesmanship.

After the installation has been contracted for, the problem is by no means solved, the writer points out. Installation and subsequent service by trained men are absolutely necessary for complete satisfaction.

To meet the paucity of trained men, manufacturers are now active in promoting schools in the factory and practical training in the field. And apart from this schooling within the industry itself, engineering and technical schools are doing much to train men, Mr. Elting writes.

**LACK OF UNIFORMITY**

2. Another industry problem is the lack of uniformity, particularly in engineering standards. "While manufacturers recognize the diversity in air conditioning and urge the importance of suiting the equipment to the particular job, at the same time they realize the advantages of setting uniform engineering standards wherever possible," Mr. Elting continues.

To advance uniform methods, some manufacturers supply charts and check lists; and industry and professional societies have issued specification guides and codes of minimum standards for estimating jobs.

Another contribution toward uniformity is the use of charts of estimating actual operating costs of various types of equipment. Still another yardstick is the "comfort chart" developed by American Society of Heating & Ventilating Engineers.

The position of independent air-conditioning engineers and utility companies' consultants also has added to this movement toward uniformity, contends Mr. Elting. As the superiority of certain types of installations is recognized by these independent authorities, the industry will have a more accurate basis for comparison of equipment, he states.

**HIGH EQUIPMENT COST**

3. A third important "within-the-industry" problem is the high cost of complete equipment. These costs result not only from the cost of raw materials, labor, and distribution, but also from the fact that many types of equipment require an unusually high cost of installation, the writer states. Cost of installing a central or a multi-unit system, for example, has been estimated to run as high as 60% of the total ultimate cost to the buyer.

Aside from this, impossibility of producing many types and sizes of parts and equipment on a mass-production basis has been another stumbling block toward the reduction of manufacturing costs.

But probably the most important reason for the high price of complete air-conditioning equipment lies in its "tailor-made" characteristics, Mr. Elting declares. A number of men are required to do the job of making, estimating, selling, installing, and servicing the unit.

**FLY-BY-NIGHT COMPANIES**

4. Another problem, common to an expanding industry, is the wildcat, fly-by-night company which attempts to crash the market made possible by the research and experimentation of older reputable concerns. In the air-conditioning industry, this type of industrial racketeer is the maker of "air-conditioning equipment" which does not fulfill the minimum requirements of true air conditioning.

Air-conditioning manufacturers, however, do not regard the wildcat

operator as much of a menace, says Mr. Elting, for they feel that the public is not deceived by his misrepresentations. He cites recent action against this type of manufacturer by the Federal Trade Commission, the U. S. Department of Commerce, and the National Better Business Bureau.

**IRRESPONSIBLE DEALERS**

5. Along with fly-by-night companies, irresponsible dealers have created still another problem within the industry, Mr. Elting declares. This is a matter entirely in the control of manufacturers, however, he points out, and they are being unusually careful in the selection of qualified men to sell their equipment.

Other problems, including that of reserve stocks, technical engineering problems, the need for a safe, effective refrigerant, and the amount of water used by air-conditioning systems, are now pretty well under control, he states.

Confusion of public thinking on air conditioning, has been contributed to by irresponsible building contractors, who have built residences with partial air conditioning and sold them as "fully air conditioned."

"Some of these installations are totally inadequate for their requirements, as the buying public is finding out," says Mr. Elting. Architects in some small towns hesitate to specify air conditioning, even when the client requests it, because of the difficulty of getting proper advice and a good installation; but an increase in the number of air-conditioning engineers will take care of this situation, Mr. Elting believes.

"Another and more important problem that faces the industry today is the number of city and municipal ordinances which many manufacturers consider are 'hamstringing' air-conditioning installations," the writer declares.

**CITY CODES**

"Some 30 cities have regulations in the building, electrical, safety, and health codes that directly affect the installation of air-conditioning equipment. They tend not only to regulate the type of equipment used, but also the methods and procedure of installation, and even the operation of the equipment.

"Such regulations, while helpful in some respects, bring in the danger of impeding the growth and development of air-conditioning equipment.

"Cincinnati has taken the first step toward uniform operation of air-conditioning equipment with an ordinance limiting to 15° the differential between the temperature of an air-conditioned building and the temperature outside. While manufacturers do not consider this the final and complete answer to the problem, the industry as a whole welcomes the ordinance as being a constructive move to correct the erroneous operation of air-conditioning installations."

"Problem of taxation has not yet become serious to the industry, but it may. Columbus, Ohio, has a tax on sewage outlets which might discourage sales of equipment without water-saving devices. And Cincinnati is considering a tax on all air-conditioning equipment."

Air conditioning is growing, Mr. Elting concludes; all types of equipment are generally increasing, the industrial market is expanding, so is the commercial market, and the residential field is practically untouched.

"What lies ahead is anyone's guess," he declares. "But the industry now is solving the problems of the day one by one, in sound, thorough fashion—in a fashion which promises a sound foundation for the future. And that is a good sign."

**Anaconda Copper  
Refrigeration Tubes**



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REFRIGERATION TUBES

THE AMERICAN BRASS CO.  
FRENCH SMALL TUBE BRANCH  
General Offices: Waterbury, Conn.

## Carrier's Lady Engineer



This is Miss Margaret Ingels, Carrier's lady engineer. She has been with Carrier Corp. since 1929, first as a sales promotion assistant and director of education for Carrier Lyle Corp., and now as technical assistant in the price and data department.

Born in Paris, Ky., Miss Ingels was graduated from Lexington high school, Lexington, Ky., and from the college of engineering of the University of Kentucky (1916), the first woman in the United States, and possibly the world, to be graduated with a degree in mechanical engineering. She received an advanced degree from University of Kentucky graduate school in 1922.

From 1916 to 1918, Miss Ingels was employed in the traffic department of the Chicago Telephone Co. The World War, with all available men going to the front, opened positions for women in professions formerly dominated by men; and so, in 1918, Miss Ingels joined the estimating engineering department of Carrier Engineering Corp. in New York City.

## New York Furrier's Gross Business Doubles in Volume with Air-Conditioning Installation

NEW YORK CITY—An increase in their business volume to \$250,000, or practically double last year's gross, is claimed by the owners to be in good part the result of the air-conditioning installation made last spring, not only in the customers quarters, but in the fur storage and work "loft" of the Ellbee Furriers located here at 132 W. 31st St.

The Ellbee Furriers, said to be one of the oldest and largest among New York's remodeling furriers, was founded in 1898. The business now is owned and operated by native Americans, Leonard, Samuel and Max Horowitz, three brothers who have followed in their father's business footsteps with progressive ideas of their own.

### EFFECT ON SALES

One of these progressive ideas is that the investment in customer and employee well being and comfort represented by the cost of air conditioning has a very desirable influence upon the well-being of the cash register and the bank balance as well.

Furthermore, experience has proven the improvement in quality of the company's products resulting from air conditioning.

So well pleased with his investment in air conditioning is President L. B. ("Ellbee") Horowitz, that he tells all about it in his direct-mail, newspaper, and radio advertising.

## Zone Air-Conditioning System Installed in New Orleans Building of Farm Credit Administration

NEW ORLEANS—Equipped with Trane extended surface heating and cooling coils, a zone air-conditioning system has been installed in the recently enlarged Farm Credit Administration building here. Installation was made during enlargement.

The building is divided into six zones, each conditioned by a combination heating and cooling fan system. Two of the fan systems are in the basement, the other four being installed in a special fan room on the roof of the building. Output of conditioned air by each varies, the extremes being 5,830 c.f.m. and 24,318 c.f.m.

From 1922 to 1928, she was in the research laboratory of American Society of Heating and Ventilating Engineers, operated in Pittsburgh in cooperation with U. S. Bureau of Mines and U. S. Public Health Commission. Here her research projects covered atmospheric dusts; the infiltration of air through building walls and around building openings, such as windows and doors; and the physiological reactions of people in various conditions of air.

During 1928 and 1929, Miss Ingels was associated with the New York Commission on School Ventilation, making field tests in Syracuse, N. Y. Her study was to correlate health and attendance of school children to various types of ventilation systems. She left that position to come to Carrier Corp.

Reports and papers of Miss Ingels' work have been published in the transactions of American Society of Heating & Ventilating Engineers, and in publications of various other professional organizations.

### EQUIPMENT USED

To accomplish the two-fold purpose of comfort cooling and storage cooling, both essential to the present-day progressive furrier's establishment, the following equipment was installed. For comfort air conditioning a York Freon-12 condensing unit and two finned cooling coils were installed.

These are said to have proved adequate for keeping factory fitting rooms, reception and conference rooms cool and comfortable even on the hottest days. For the purpose of refrigeration to maintain a low temperature in the large storage area, 28 x 32 x 11 feet, one York space chiller of the self-contained unit type, with a 3-hp. motor, was installed, together with a York Freon-12 condensing unit.

The entire equipment was installed without materially altering the interior architectural features of the establishment. All grille work and fresh air outlets were so placed as to be inconspicuous, while keeping the atmosphere fresh and free from dust and other impurities common to places where garments are frequently handled.

## Public Relations of Bank Improved by Air Conditioning

SAN FRANCISCO—Air conditioning has proved a doubly valuable investment for the American Trust Co. here, reports E. V. Krick, vice president and cashier. In addition to adding to the working efficiency of the bank's personnel, the system has helped in making public relations more than usually good, he says.

"We believe, from observation, that air conditioning will rapidly grow to become one of the most important factors in the construction or renovation of bank premises," Mr. Krick says.

"Central California is not subject to the extreme cold experienced in the East, but a number of our branches are in communities where the summer is characterized by periods of heat and high humidity. We find in these towns a rapidly developing program of installing air-conditioning equipment in stores, offices, hotels, restaurants, and certain industrial buildings.

### BETTER-DRESSED STAFF

"Under the new conditions, our staff, is able to dispense with such informalities as shedding coats during extreme hot weather, and present a proper, business-like appearance. This means a great deal in the impression received by our customers. Particularly in the discussion of matters involving credit is the atmosphere of the bank a factor that has great bearing on the final understanding."

In rural communities, where there is a considerable increase of activities owing to deposits of crop checks and other seasonal pick-up during the late summer, without air conditioning it is probable that extra employees would be required, or interference made with vacation schedules, neither of which is beneficial to smooth operation, Mr. Krick continues.

An interesting side light of the system, in Mr. Krick's opinion, is that filtering the air eliminates a great volume of dust and dirt, that would otherwise go into human lungs, or affect clothing, equipment, or bank records.

### RELATIVE TEMPERATURES

"When the equipment was first installed in each of our branches," Mr. Krick declares, "some employees constantly requested lower temperatures, hardly realizing that unpleasant after-effects might result. It was pointed out that persons entering the bank would feel the sudden change.

"Now it is a routine detail to set the thermostat at the correct relative temperature, and this is maintained through the day. On a very hot day, a relatively high temperature can be maintained without producing discomfort, owing to the fact that the air is filtered and dehumidified."

The bank intends to include air conditioning whenever it finds it necessary to remodel one of its present buildings or erect a new structure, Mr. Krick says. In San Francisco and other cities adjacent to the Bay, the company can dispense with the cooling unit, using only the equipment which will heat the rooms properly, control the humidity, and circulate clean, filtered air.

"Our competitors, and many other business establishments, are thinking along the same lines, so that we take no credit for being pioneer users of modern air-conditioning equipment in our district," Mr. Krick concludes.

## Conditioning Used to Produce Paper

CAMBRIDGE, Mass.—Faced with the problem of controlling temperature and humidity conditions in the room used for drying the special kind of paper which it manufactures for stencil work, Elliott Addressing Machine Co. turned to H. C. Trask, president of Trask Engineering Corp., Servel distributor in the Boston territory.

Mr. Trask's recommendation of an air-conditioning installation was approved by the Elliott Co.

The drying room to be conditioned was 160 feet long and 40 feet wide. The job required close control of humidity and also a comparatively slow air movement, for excessive movement would cause the wet sheets of paper hung upon the racks to touch each other and stick together.

Mr. Collins, applications engineer for Trask Corp., designed the instal-

lation to maintain a relative humidity of approximately 35% and dry-bulb temperature of 85° F. Outside conditions were taken at 90° dry bulb and 73° wet bulb. Although inside dry-bulb temperature was not restricted to 85° for summer operation, it was necessary to maintain at least this temperature during winter months to facilitate the drying process and to assure the comfort of workers.

In figuring the job, careful consideration had to be given the amount of moisture to be removed from the product as well as the amount to be removed from the outside air. This meant using the heating coil as a reheat coil during periods in the summer.

Equipment used in the installation consisted of two 20-ton Servel machine units and one central type air-conditioning unit equipped with heating coils in addition to the usual filter banks, cooling coils, blowers.

Air distribution was attained by using a central duct system with numerous large outlets near the ceiling, thus eliminating high velocities.

## THE BUYER'S GUIDE

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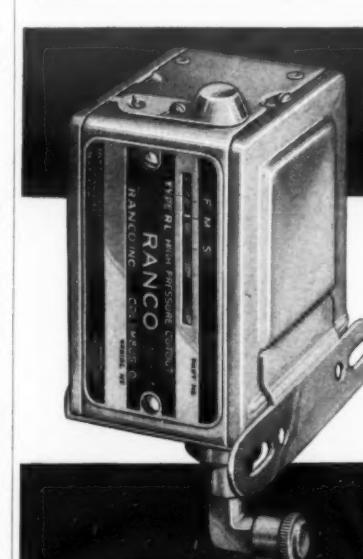
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## AIR CONDITIONING

### St. Louis Utility Converts Basement Storage Space into Air-Conditioned Office

ST. LOUIS—Conversion of part of its basement storage space into a modernistic, air-conditioned office has been accomplished by Union Electric Co. of Missouri, in the Union Electric building here.

The company's air-conditioning department had grown so large that new office space was required. No room was available in any part of the building, and it was decided to create an office in the basement. The site chosen is adjacent to the Union Electric air-conditioning exhibit, right in the center of the basement.

Partitions were set up enclosing an area approximately 26 feet square, walls and ceiling were painted light

green, the concrete floor was covered with light tan linoleum, semi-indirect lighting was arranged, and an air-conditioning system was installed.

For summer cooling, the system draws outside air through a metal duct, mixes it with recirculated air, cools, cleans, and dehumidifies the mixture, and sends it into the office through grilles in the top part of the walls.

In spring and fall, outside air is drawn in and is not mixed with inside air, but just cleansed before transmission to the office. In winter, heated air is moistened by water sprays within the conditioner before being sent into the room.

### THE BUYER'S GUIDE



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### Dealers Advised to Sell Conditioning During Winter

BLOOMFIELD, N. J.—Smart air-conditioning dealers—and prospects, too—will do well to consider seriously the matter of air conditioning during the cold weather months, instead of waiting until the summer peak, says J. J. Donovan, manager of General Electric's air-conditioning department.

The dealer should go after some of his prospective summer business during winter months, because it will help level off his annual revenue—and the prospect is wise to make arrangements for his installation before warm weather, to get the advantage of more careful engineering, lower costs, and less interference with regular operating routine.

"Special discounts and lower mark-ups on condensing and conditioning equipment during the fall and winter months are direct incentives to buying at this time," Mr. Donovan says, "but lower installation costs, more adequate engineering surveys, and more time to do the job constitute the really important arguments. These factors are just as important to the domestic as to the commercial prospect."

"Installing air-conditioning equipment requires time, skill, and patience, and the buyer who wants to obtain the most for his money will not wait until the rush-season is on. Any commodity is most expensive when it is most in demand."

"The engineering design of an air-conditioning system has a direct bearing on its cost. If ample time is allowed for a careful analysis of the job, a design can often be worked out which offers inherently lower costs than that which has been prepared in a hurry."

"Also, by installing a system in the winter, a business can arrange the schedule of installation work to minimize interference with its regular activities and save money by eliminating overtime. When ample time is allowed, the customer is assured of better quality work and better workmen. When contractors are overburdened, as they are in the spring and summer, sheet-metal work, plumbing, and wiring are certain to cost more."

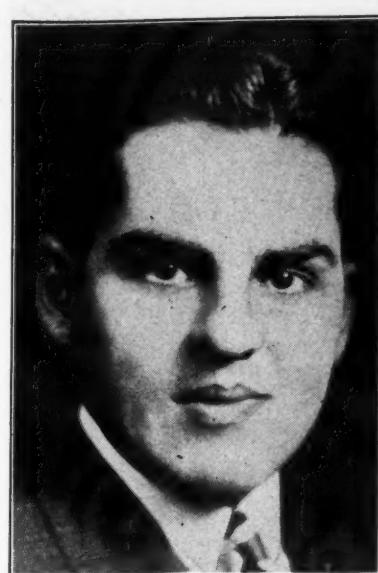
"A retail store can capitalize on the advertising value of making an air-conditioning installation during the winter months. There is adequate time to let customers know that they can shop there in comfort during the coming summer. It is an aggravation to the average patron to swelter in a hot store while he is being told that air conditioning is on the way and will be put in service as soon as the contractor can get around to it."

"During the winter, also," Mr. Donovan declares, "contractors have more time to give accurate cost estimates, and in many cases subcontractors are willing to quote lower prices in order to keep their men busy. The installation is properly scheduled and workmen are sent to the job only when the necessary equipment is there."

"Liberalized financing plans are now in existence which do not penalize the buyer of air conditioning for taking advantage of slack season."

For the past two months the General Electric air-conditioning department has been campaigning along these lines, in a drive to convince logical "next summer" prospects that their investment will bring greater returns if the decision to install equipment is made now. Direct mail has been used extensively.

### Figure in York Changes



John R. Hertzler (left) has been appointed general refrigeration and air-conditioning representative for York Ice Machinery Corp. while Willis E. Barnum (right) will succeed Mr. Hertzler as manager of the company's air-conditioning division.



### Doctors Study Correct Air Conditioning for All Operations

PITTSBURGH—A group of distinguished medical men and air-conditioning engineers is conducting experiments at the Magee hospital here which are expected to reveal the best atmospheric conditions for all types of operations. The experiments will extend over a period of years, and will also cover air conditioning in recovery rooms.

Dr. R. R. Huggins, dean of the University of Pittsburgh medical school, and F. C. Houghton, research director of the American Society of Heating & Ventilating Engineers, are directing the project, which is attracting the attention of medical men from all parts of the world.

The experiments will treat factors other than those controlled in home or commercial installations, Mr. Houghton explained. "We found that the apparatus, in addition to controlling temperature, must be variable enough to control humidity, air motion, change of air, bacteria and dust content," he said.

### Windowless Factory Built For G-M Laboratory

MILFORD, Mich.—Completely air conditioned to eliminate windows and maintain constant temperatures as an aid to efficiency of delicate recording instruments, General Motors Corp.'s new acoustical laboratories building has been completed at the company's proving ground here.

Walls of the building are of glass blocks. There are seven rooms in the building, two of which are "super-quiet" rooms built on separate foundations and connected with the main structure only by small flexible cables for electrical services.

Ceilings and walls of the two quiet rooms are 14 in. thick, being made up of 6-in. layers of concrete and a special 8-in. construction composed of two 2-in. air spaces, 2 in. of bituminous treated rock wool, 2 in. of soft rock wool, and a layer of molded cement and asbestos perforated by small, sound-absorbing holes.

Each quiet room is electrically connected to the ordinary instrument rooms, making it unnecessary for anyone to be in it when sound tests are made. General Motors automobiles, household appliances, and other products will be tested in the new laboratories, and engineers expect to reduce considerably the amount of their operating noise and vibration.

### Self-Filling Humidifier Built By Philadelphia Company

PHILADELPHIA—A self-filling automatic humidifier for use with steam or hot water heating systems has just been introduced by Lowell Air Conditioning Corp.

The unit fits any radiator and is supplied with a streamlined grille, or may be had without grille if desired for use on an enclosed radiator. One unit is sufficient to humidify a single room or office, and from two to four units will serve the average home, the manufacturer says.

Price of the humidifier is \$32 with grille, or \$30 without grille.

### Barnum Manages York Air-Conditioning Sales

(Concluded from Page 1, Column 2)  
York's Los Angeles branch, now heads the company's air-conditioning division, according to S. E. Lauer, vice president and general sales manager.

Both Mr. Hertzler and Mr. Barnum first entered the York organization as members of the company's student training course.

After finishing his two-year course, Mr. Hertzler was assigned to the Brooklyn office. In 1931, he was made manager of air-conditioning sales in the Brooklyn territory, and in 1935 he became manager of York's air-conditioning division.

Mr. Barnum was assigned in 1928 to the company's Los Angeles office, where he became one of the leading air-conditioning salesmen on the Pacific coast.

### Air-Conditioned Dark Room Used by Survey Group

HONOLULU, Hawaii—Air-conditioning equipment supplied by Theo. H. Davies & Co., Ltd., Servel distributor here, made it possible for the National Geographic Society—U. S. Navy expedition successfully to photograph the solar eclipse which occurred this year.

Climatic conditions on the island of Canton, the expedition's base in the south Pacific, made it imperative that all photographic plates be developed immediately after exposure. Consequently it was necessary to erect an air-conditioned dark room on the island.

It was while en route to the island that the expedition learned that a suitable dark room could not be provided on the vessel on which they were traveling. When the need for construction of an air-conditioned dark room became apparent, a Servel-owning scientist-member of the party suggested that the problem be laid before the Servel distributor at Honolulu, the ship's first stop.

So to Joe Rubenston, sales engineer for the Davies organization, went the job of constructing a unit to fit the expedition's requirements.

Mr. Rubenston connected a 1/2-ton Servel condensing unit, powered by a gasoline engine, to a floor-type air-conditioning unit. To simplify operation of the system, all connections were arranged in such a way that the conditioner could be placed in operation simply by starting the gasoline engine and opening the liquid line valve.

As no qualified refrigeration man was to accompany the expedition, Mr. Rubenston charged the assembly and tested it thoroughly for leaks. Then he pumped down the entire charge by shutting off the liquid line by means of a Kero-test hand valve placed in the line for that purpose.

Expedition members reported that the conditioner operated effectively.

### Cleveland Firm to Distribute Auburn Products

CLEVELAND—The Markepp Co. has been named distributor for air-conditioning equipment manufactured by the air-conditioning division of Auburn Automobile Co.

## FOREIGN NEWS

### Modern Markets and Cold Storage Plant Opened in Ploesti, Rumania

PLOESTI, Rumania — The new Market Halls of Ploesti, a busy city in the heart of the Rumanian oil-fields, are said to constitute one of Europe's most modern and most hygienic food preservation plants.

The front section of this rectangular group of buildings houses administrative offices, living quarters for the director and manager, a produce market, a restaurant, bank, post office, and telegraph office. In other parts of the group are a fish hall and an ice factory and storage room. With the exception of the side where the administrative buildings are located, the main halls are surrounded by a court and a row of shops on the street front.

Cold rooms, constructed of reinforced concrete and insulated with slab cork, are provided at each merchant's stall. These cold rooms, 76 in all, are lined outside with white tile and inside with stainless sheet steel. The cold rooms for meat are in three sections, and their fronts are designed like shop windows; those for dairy produce are divided into four compartments, each having a separate door.

Cold storage facilities in the basement include rooms for fruit, vegetables, dairy produce, poultry, a thawing section for eggs, and two fish store rooms which are located apart from the other rooms. All cold storage rooms open on to an insulated anteroom which is kept at a slightly higher temperature. The cold rooms are cooled by cold air circulation,

tion, by direct radiation, or by a combined system, depending upon the nature of the goods stored within them and the degree of humidity required.

The refrigeration plant, installed by Sulzer Bros., consists essentially of three sections—the first to cool the food stores, the second to serve the ice plant, and the third to operate in connection with the cold storage rooms installed in the various stores in the main hall.

The three vertical two-stage compressors work on the dry-compression system. They are forced lubricated and are fitted with enclosed casings and light disc valves. Two of the compressors have a capacity of 300,000 B.t.u. per hour each, while the capacity of the third is only 188,000 B.t.u. per hour. The first two compressors furnish the refrigeration required for the cold storage rooms and the ice factory; the third supplies refrigeration for the small cold rooms.

The three compressors work in parallel with a shell-and-tube condenser incorporating three elements which can be subdivided. One of the elements can be inspected and cleaned while the other two are in service, though the plant must operate at somewhat reduced capacity during this period.

All cooling facilities are controlled by thermostats and electromagnetic valves. The entire brine distributing system is concealed and the brine piping is insulated with cork.

### 5 Carrier Centrifugal Machines Installed In Rayon Plant

QUILMES, Argentina—Five Carrier centrifugal refrigerating machines furnish 890 tons of refrigeration for the Duccillo plant here, largest rayon plant in South America and one of the largest of its kind in the world. The equipment was installed by Carrier Lix-Klett S. A., of Buenos Aires.

Three of the five machines cool water which is used to maintain proper temperatures in those portions of the plant where the more delicate processes, such as steeping, shredding, spinning, grading, and sorting, are carried out.

The other two machines cool brine to 20° F. for use in processing some of the material from which rayon is made. The turbine-driven centrifugal machine with automatic speed turbine regulation, closely controls the brine temperature in the coils.

### Kelvinator Distributor In Turkey Is Dead

ISTANBUL, Turkey.—Aram Gesar, of Schorr & Gesar, Turkish distributor for the Kelvinator division of Nash-Kelvinator Corp., died here recently at the age of 47 years.

One of modern Turkey's most prominent business men, Mr. Gesar owned, with his brother, one of the leading hardware firms in the country in addition to his interest in the distributorship, which he helped found in 1927.

"In Mr. Gesar's death," said E. H. Wilcox, Kelvinator export manager, "Kelvinator has lost one of the most valued and highly respected members of its European organization."

### Manager of York Sales in England Visits Plant To Study Products

YORK, Pa.—Marshall G. Munce, managing director of York-Shipley, Ltd., London, England, recently visited York Ice Machinery Corp. to inspect latest developments in air conditioning and refrigeration equipment.

In Mr. Munce's opinion, air conditioning has taken definite hold in England, and the industry has made an excellent start. As examples of outstanding installations that have gained wide attention he mentioned the new modern eight-story Eton House, in the heart of London's west end, the Great Room of Grosvenor House, where the Coronation ball was held, and J. Lyons & Co., Ltd., Great Britain's largest catering house.

"There is no doubt," declared Mr. Munce, "that within the next few years restaurants, cinemas, and shops will turn rapidly to air conditioning. Every indication points to considerable growth of the market in these three fields."

### Argentine Utilities & Importers Form Appliance Institute

BUENOS AIRES, Argentina—Leading Argentine electric power companies, local branches of electrical manufacturers and independent importers and wholesalers, together with Argentine manufacturers, have combined to form the Instituto Argentino de Electricidad Aplicada.

The institute will not participate in actual sales work, but will promote the sale and use of electrical appliances through expositions and educational campaigns.

**ROBERTS TUBE WORKS, INC.**  
2500 MILITARY AVENUE, DETROIT, MICHIGAN  
**BRASS COPPER & ALUMINUM TUBING,**  
FOR → AIR CONDITIONING,  
→ REFRIGERATION,  
→ OIL BURNERS  
**MADE TO YOUR SPECIFICATIONS**  
UNDERWRITERS APPROVED  
Send Us Your Orders or Inquiries  
TUBE MAKERS SINCE 1910

### Refrigeration Sales In Japan Limited To Ice Boxes

TOKYO, Japan—Although the demand for refrigeration in homes in Japan is rapidly increasing, sales are limited almost exclusively to ice refrigerators, reports U. S. Assistant Trade Commissioner Carl H. Boehringer. At the present time, according to a dealer handling American mechanical refrigerators in the Tokyo area, 96 to 97% of all home refrigerators in Japan are non-mechanical units with ice as the refrigerant.

The main problem of the dealer in mechanical refrigeration in Japan, explains Mr. Boehringer, is the extremely low scale of Japanese life. The cheapest models of electric refrigerators retail here for 700 yen per unit, at present rates of exchange approximately \$200. These entail an average cost of 5 yen per month for electric current. The total is prohibitive to the millions of low-salaried Japanese.

Popular models of ice boxes are retailed here at prices ranging from as low as 8 yen per unit to 35 yen, which at current rates of exchange is from \$2.28 to about \$10. Only these extremely low-priced domestically made non-mechanical units are within the range of the average Japanese.

Certain ice companies in large cities, adds Mr. Boehringer, go beyond this and loan out ice boxes to consumers who contract to take a certain amount of ice during the summer season.

### Air-Conditioning Sales Gain in Turkey

CINCINNATI—During the last three years electric refrigeration and radio have taken forward strides in Turkey, E. Bidermann, of the Turkish-American Trading Co., Ltd., Crosley distributor at Istanbul, Turkey, stated on a visit here recently.

"American refrigerators are strongly in favor there, as are American radios. American products are well represented in Turkey," said Mr. Bidermann. "As America is a large importer of Turkish products, especially tobacco, there is a minimum restriction of American imports in Turkey," Mr. Bidermann said.

In spite of war clouds and war talk in Europe, he does not believe that war will break out there.

"The outlook in Turkey is very promising," he said. "It is not a boom, but business is good. Turkey is an agricultural country and prices of its products have been good the last two or three years; in fact they have been above the world level." In addition to tobacco, Turkey also raises wheat, cotton, rye, and fruit.

"Turkey made no foreign loans, but financed her own requirements. The result is that her condition is sound. International unrest is not affecting her. Turkey is no longer the 'sick man' of Europe."

### Brazilian Engineers Move To Larger Quarters

RIO DE JANEIRO, Brazil—Cei-brasil Representacoes Ltda., importers and engineers for refrigeration, air-conditioning, and ventilating equipment, has transferred its offices to new and larger quarters at Rua General Camara N° 64-7° Andar.

### Manager of Australian Company Enroute To United States

SYDNEY, Australia—Charles E. Forrest, managing director of International Radio Co. Pty., Ltd. and Jensen (Aust.) Pty., Ltd. is now touring the United States and Canada for the purpose of obtaining satisfactory lines of equipment for distribution in Australia and New Zealand.

Both companies directed by Mr. Forrest have headquarters in Sydney, both have been in the radio business since 1920, and both have acted as suppliers and factory representatives for a number of American manufacturers of such equipment as refrigerators, washing machines, ironers, electric stoves, electric clocks, and farm lighting plants.

International Radio Co. has branches in Brisbane, Melbourne, and Adelaide, Australia, and Auckland, New Zealand. It is a manufacturing as well as a distributing concern, and is interested in manufacturing radios and associated products in

Australia on a royalty basis, according to Mr. Forrest.

Regarding current trade conditions, Mr. Forrest explains that "a temporary check has been placed on the importation of certain American-made merchandise into Australia, but we anticipate that this situation will be revised at a comparatively early date. The present Australian situation, however, does not in any way affect the New Zealand market."

### Greek Appliances Must Be Approved by Govt.

ATHENS, Greece—All electrical equipment and appliances sold in Greece must be inspected and approved by a special committee, the Greek government has ruled in reviving a decree which had been unenforced for more than two years.

Local importers of electrical appliances have been required to submit for inspection by Dec. 1 samples of any electric ranges which they are selling, and have been asked to submit samples of other appliances and electrical material for approval by Feb. 1, 1938.



#### DISTRIBUTORS WANTED!

Write for details of Profit-making franchise. Complete PERCIVAL line meets every requirement of the modern food store.

**C. L. PERCIVAL COMPANY  
DES MOINES . . . IOWA**

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## THE BUYER'S GUIDE

### A COMPLETE LINE OF

Whatever the conditions—in factory, office or reception room—there is a Cordley Cooler to fit the job. Bottle or pressure types, in varying capacities, with faucet, bubbler, or glass filler, these coolers are substantial, sturdy, attractive units which you can be proud to sell.

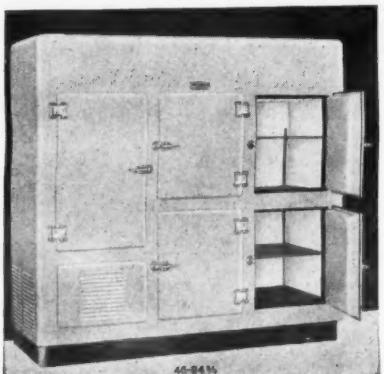
**CORDLEY ELECTRIC**



### WATER COOLERS

Many prominent firms have adopted them: Sears Roebuck, American Optical, Walter Baker Chocolate, Remington Rand, Pacific Mills, Otis Elevator, Sweet Orr Overall. CORDLEY & HAYES, 141 Hudson Street, New York City.

**WATER COOLERS**



### STREAMLINED *Beauty* THIS LINE SELLS ON SIGHT

Weber brings the result of 35 years of successful manufacturing experience . . . America's most beautiful line of Refrigerator Cases and Commercial Cabinets Exclusive territories now open — Complete financing plan

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### KOLD-HOLD ICE CREAM CABINET CONVERSION UNITS

Modernize old equipment . . . provide much greater storage space for packaged goods . . . eliminate brine leaks and attendant odors . . . reduce weight and simplify installation . . . require a minimum of service . . . provide ideal temperatures under all conditions . . . cost less to operate . . . quickly and easily installed in any standard cabinet at small cost.

*Write for Complete Facts*

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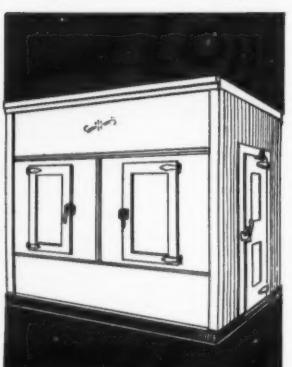
### As Outstandingly Superior as the KOLD-HOLD System of Truck Refrigeration



### BE A COMPLETE DISTRIBUTOR

Don't try to specialize in Cases and Cooling Rooms only, when there are hundreds of profit making items that are needed by your trade. Bromann Bros. have supplied this complete line for over forty years. You can also enjoy this profit sharing plan. Write

**BROMANN BROS.**  
857 Fulton St. Chicago, Illinois



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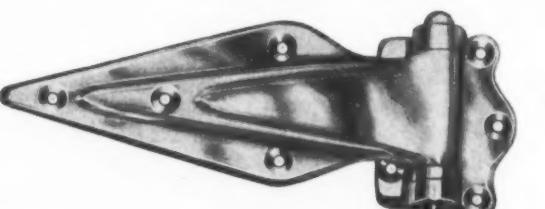
"Profit-Making Meat Displays"—a new 32-page booklet tells meat merchants how to get greater profits from their displays.

The Sherer Franchise assures you of complete cooperation from the factory. Write for details about the Sherer Case and Cooler Franchise. Valuable territories still available.

**SHERER-GILLETT CO.**

Display and Storage Equipment for Retail Food Stores

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### A NEW KASON Forged-Brass HINGE

Featuring a new, modern, streamline design in addition to its super-serviceable forged-brass construction, the No. 1010 Hinge illustrated above joins the world-famous family of KASON REFRIGERATOR HARDWARE.

KASON manufactures the most comprehensive line of quality hardware for every refrigerator need. Write for Catalog No. 38.

**KASON HARDWARE CORPORATION**  
127-137 Wallabout St., Brooklyn, N. Y.

## QUESTIONS

### Refrigeration Blue Book

No. 3143 (Distributor, Alabama)—"Please advise if there is any such thing as Blue Book for the guidance of our office for electric refrigeration dealers and the purchase of used Frigidaires, or electric refrigerators of any kind."

"We would like to have some kind of guide so as to know how much to pay for all makes of used electric refrigerators, and if you have any suggestions to offer as to the best way of handling these used refrigerators, kindly advise."

**Answer:** We do not publish a Blue Book such as you refer to, but we do have available the Refrigeration and Air Conditioning Specifications Book which might be helpful to you. This book contains specifications of household, commercial, and air-conditioning equipment for 1936 and previous years. The household specifications have been brought up to date by the addition of a supplement containing the specifications of the 1937 models. This book, including the supplement, sells for \$3.

We have laid the groundwork for an independent service on trade-in values by compiling the specifications but, so far, it has not appeared that a national schedule of prices could be determined which would be satisfactory to a majority of the dealers in all parts of the country.

However, by using the Specifications Book as a basis, a dealer, or a local group, may work out a schedule of values according to local conditions.

Manufacturing companies holding membership in the Refrigeration Division of National Electrical Manufacturers Association (Nema) have agreed to cooperate with the News in bringing the Specifications Book up to date. A new book containing specifications on the 1937 and 1938 models will probably be published a little later as a supplement to the big book which covers 1936 and all previous years.

The Specifications Book as originally published was intended primarily to furnish information which would be valuable to manufacturers, distributors, jobbers, and service companies, in specifying replacement parts and in determining the proper quantity of refrigerant and lubricant, etc. in servicing operations.

### Book on Belt Sizes

No. 3144 (Distributor, New York)—"We understand that there is some reference book on the market in the refrigeration industry showing the manufacturer's number in the refrigeration, washing machine and other small appliance lines of belt manufacturers, thereby comparing the different size of belts."

"Please advise where we might be able to obtain such a reference book. Also advise if you have a later refrigeration directory than your 1934 book which we have on file."

**Answer:** The 1936 Refrigeration and Air Conditioning Specifications Book provides data on belt sizes for all models of all makes of household and commercial refrigeration machines through 1936.

The manufacturers of belts such as the L. H. Gilmer Co., Keystone & Cottman Sts., Philadelphia, Pa.; the Dayton Rubber Mfg. Co., Dayton, Ohio; and the Gates Rubber Co., 999 S. Broadway, Denver, Colo. have issued booklets giving belt sizes and number for refrigerating machines and other appliances.

We have a new 1938 Refrigeration and Air Conditioning Directory in process and it will be ready for delivery within a very short time. It is the first Directory published since 1935.

### Manufacturer of Freon

No. 3145 (Reader, Palestine)—"I am interested in Freon refrigerant. Could you give me the names and addresses of manufacturers of Freon refrigerant."

**Answer:** Freon refrigerant is manufactured by the Kinetic Chemicals Co., Wilmington, Del.

### Frozen Food Packers

No. 3146 (Manufacturer, Michigan)—"We would like to have a list of packers of frozen foods. We will appreciate your sending us such a list if you have one available, and if not, perhaps you can tell us from whom we may get one. Thank you."

**Answer:** We have made up such lists in the past, but we are afraid our compilations would be out of date now. We believe that you can obtain such a list, however, from the Frozen Pack Laboratories, Bureau of

Chemistry and Soils, United States Department of Agriculture, Seattle, Wash.

### State Sales Figures

No. 3147 (Factory Branch, Illinois)—"We are in the process of making out various reports showing the increase of the refrigeration business for the year 1937 over the year 1936.

"Through your paper we have been able to ascertain the number of refrigerator units sold nationally and the number sold in the State of Illinois for the first nine months of 1937 but do not have a complete file of your paper for the year 1936.

"Would it be too much trouble for you to give us the national unit sales and the State of Illinois sales for the first nine months of 1936?

"We would greatly appreciate any assistance you could give us along this line. This figure need not be broken down by months; just the total accumulative figure for the first nine months of 1936."

**Answer:** Total refrigerator sales in the state of Illinois for the first nine months of 1936 were 122,708, and in the entire United States during the same period of time were 1,668,652.

A leaflet, No. 756, which we brought out recently gives the total sales of household electric refrigerators by states for the year 1936 and also for the four previous years. Also contained in this leaflet are sales figures on commercial and air-conditioning units by Nema companies for 1936 and for the first six months of 1937. Copies of this leaflet are available upon request.

### Appliance Statistics

No. 3148 (Agency, Illinois)—"On Oct. 16 you sent me a leaflet containing recent figures on electric refrigeration sales. I am wondering if you have the same sort of information covering electric ranges and washing machines. If you have, I should greatly appreciate receiving it."

**Answer:** Figures on electric range sales for the first nine months of this year and on washing machine sales for the first eight months of this year were published on page 4 of the Nov. 10 issue of AIR CONDITIONING AND REFRIGERATION NEWS.

### Expansion Valve Breather Caps

No. 3149 (Service Contractor, Ohio)—"Can you advise us who manufactures rubber expansion valve breather caps?"

**Answer:** We do not know of any firms which make a specialty of manufacturing expansion valve breather caps. Try writing to the manufacturers of expansion valves.

### Truck Unit Makers

No. 3150 (Dealer, Pennsylvania)—"Are there any truck units built today? If so please give me names and addresses of companies that are building them."

**Answer:** Manufacturers of truck refrigeration units and parts will be listed in the 1938 REFRIGERATION AND AIR CONDITIONING DIRECTORY, which will be off the presses in a very short time.

### Refrigeration System Using Carbon Monoxide

No. 3151 (Dealer, Ohio)—"Please inform me if anybody has been able to develop a mechanical contraption to produce refrigeration from automobile gas (carbon monoxide)."

**Answer:** Do any readers know of such a development?

### Air Conditioners Using Silica Gel

No. 3152 (Manufacturer, New York)—"Can you tell from your records for any recent year or years the number of air-conditioning installations (industrial plants, buildings, hospitals, homes, etc.) which have embodied the Silica Gel process. If you have any data covering the same process as applied to railroad refrigerator cars and motor trucks, we should be glad to have it as well."

**Answer:** We do not have any information on sales figures along these lines. You might possibly obtain an estimate by writing to the Bryant Heater & Mfg. Co., 1725 St. Clair Ave., Cleveland, Ohio.

### Ice Skating Rink

No. 3153 (Research Bureau, New York)—"One of our correspondents of Charlotte, N. C., is considering the building of an artificial ice skating rink. May we ask your advice regarding the following questions he has asked concerning such a venture?"

"1. How thick must the ice be on a skating rink?"

"2. Should the building be tight and insulated inasmuch as the outside temperature may be above freezing (45 or 50°)?"

"3. Can the tubes or pipes used in freezing the ice be laid on level ground?"

"4. How can plans for such an undertaking be obtained?"

"5. Where can the machinery and equipment be bought?"

"6. What is a good average size for a skating rink?"

"7. Might a skating rink (ice) in Charlotte, N. C. (55,000 white population) be expected to pay?"

"8. Do you know of any skating rinks in the south? Where? Which is nearest Charlotte, N. C.?"

"We will greatly appreciate any information, advice, or suggestions you may offer regarding the questions above."

**Answer:** We would suggest that your correspondent address his inquiries to manufacturers of industrial refrigerating equipment who make such rinks. Following is a list of such manufacturers.

Baker Ice Machine Co.

16th & Evans St., Omaha, Neb.

Carrier Corp., Syracuse, N. Y.

Frick Co., Waynesboro, Pa.

General Refrigeration Corp., Beloit, Wis.

Howe Ice Machine Co.

2825 Montrose Ave., Chicago, Ill.

Vilter Mfg. Co.

2217 S. First St., Milwaukee, Wis.

Carbondale Division

Worthington Pump & Machinery Corp.

Harrison, N. J.

York Ice Machinery Corp., York, Pa.

### Mueller Claims Dehydrator Eliminates Restrictions

PORT HURON, Mich.—Mueller Brass Co. has introduced a new style dehydrator, which is said to keep restriction in the refrigerant line to a minimum.

In the Mueller dehydrator the small particles of dehydrating agent lodge at the circumference of the base of the conical outlet screen. This is said to keep the center of the outlet screen open at all times for the flow of refrigerant.

The center of the cone is filled not only with a felt pad filter, but also with wool, to provide more efficient filtering.

Mueller Brass has also introduced two new valves for relief applications. One is an angle receiver valve with a by-pass outlet threaded to take a fusible union or relief valve. By using this type of receiver valve it is not necessary to braze a separate fitting into the receiver for a relief outlet.

Another new Mueller valve is an angle relief valve which is said to conform to the code requirements of many cities.

The angle type construction is claimed to permit emergency servicing without the necessity of removing the valve from the system.

**CONDENSERS**  
**COMMERCIAL EVAPORATORS**  
**DOMESTIC EVAPORATORS**  
**COMFORT COOLERS**  
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Air Conditi

## SALES FIGURES

### 72,490 Household Electric Refrigerators Sold to Distributors & Dealers in October by 15 Companies

The following 15 member companies of the Refrigeration Division of the National Electrical Manufacturers Association (Nema) reported household refrigerator sales for October, 1937: Apex Electrical Mfg. Co., Crosley Radio Corp., Fairbanks, Morse & Co., Frigidaire Corp., General Electric Co., Gibson Electric Refrigeration Co., Kelvinator Div., Nash-Kelvinator Corp., Leonard Div., Nash-Kelvinator Corp., Norge Div., Borg-Warner Corp., Servel, Roebuck & Co., Stewart-Warner Corp., Inc. (export only), and Sears.

Sunbeam Electric Mfg. Co., Uniflow Mfg. Co., Universal Cooler Corp., and Westinghouse Electric & Mfg. Co. Member companies not reporting included: Jomoco, Inc., Merchant & Evans Co., and Sparks-Withington Co.

The sales of the reporting companies do, however, include units manufactured for the following concerns: Major Appliance Corp., Montgomery Ward & Co., Potter Refrigeration Corp., and Sears, Roebuck & Co.

SALES FOR OCTOBER, 1937									
	Domestic		Canadian		Other Foreign				Value
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	
1. Chest	139	\$ 5,985	1	\$ 49	290	\$ 14,911			
2. Less than 3 cu. ft.									
3. 3 to 3.99 cu. ft.	1,799	112,068	1	55	1,097	68,937			
4. 4 to 4.99 cu. ft.	9,053	599,030	335	22,331	2,211	149,281			
5. 5 to 5.99 cu. ft.	16,309	1,332,015	261	21,187	2,616	221,531			
6. 6 to 6.99 cu. ft.	17,718	1,647,449	112	10,269	889	84,518			
7. 7 to 7.99 cu. ft.	7,653	802,237	42	4,081	349	37,567			
8. 8 to 9.99 cu. ft.	1,748	199,962	3	345	53	6,338			
9. 10 to 12.99 cu. ft.									
10. 13 cu. ft. and up.									
11. Total Lacquer	54,419	4,698,746	755	58,317	7,505	583,063			
Porcelain (Exterior) Cabinets Complete									
12. Up to 4.99 cu. ft.	16	1,333			38	3,019			
13. 5 to 5.99 cu. ft.	1,618	146,786	16	1,462	261	24,603			
14. 6 to 6.99 cu. ft.	4,006	410,952	16	1,656	44	4,503			
15. 7 to 7.99 cu. ft.	2,023	223,357	4	444	46	5,288			
16. 8 to 9.99 cu. ft.	978	118,744	6	729	31	4,114			
17. 10 to 12.99 cu. ft.	120	23,773	1	197	15	2,687			
18. 13 cu. ft. and up.	383	83,683	1	174	22	4,257			
19. Total Porcelain	9,144	1,008,628	44	4,662	457	48,471			
20. Total—Lines 11 and 19...	63,563	5,707,374	799	62,979	7,962	631,554			
21. Separate Systems $\frac{1}{4}$ Hp. or Less	495*	33,419*			472	20,742			
22. Separate Household Evaporators	43	1,451	31	472	115	1,916			
23. Total—Lines 20, 21, 22...	63,111		830		8,549				
24. Condensing Units $\frac{1}{4}$ Hp. or Less	281	19,901	13	863	51	3,748			
25. Cabinets—No Systems	70	4,295			11	963			
26. Total Household		\$5,699,602		\$64,314		\$658,923			

\*Includes sales and credits reported by more than one company.

### 6,944 Air-Conditioning and Commercial Systems Sold in October To Distributors and Dealers by 14 Companies

The following report of commercial refrigerating and air-conditioning equipment sales for October, 1937, was made to the Commercial Refrigeration Section of the National Electrical Manufacturers Association (Nema) by 14 companies:

Brunner Mfg. Co., Carrier Corp., Crosley Radio Corp., Frigidaire Corp., General Electric Co., Gibson Electric Refrigerator Co., Kelvinator Div., Nash-

Kelvinator Corp., Merchant & Evans Co., Norge Div., Borg-Warner Corp., Servel, Uniflow Mfg. Co., Universal Cooler Corp., Westinghouse Electric & Mfg. Co., and York Ice Machinery Corp.

SALES FOR OCTOBER, 1937									
	Domestic		Canadian		Other Foreign				Total World
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Value
1. Bottle Water Coolers—Complete	222	\$ 20,354	3	\$ 216	97	\$ 8,589	322	\$ 29,159	
2. Pressure Water Coolers—Complete	307	31,980	6	574	37	3,119	350	35,673	
3. Water Coolers—Low Side Only	80	5,659			5	288	85	5,947	
4. Ice Cream Cabinets—Complete	480	70,330	6	718	38	4,327	524	75,375	
5. Ice Cream Holding Cab. Only (Remote)	115	12,947	1	132	6	1,027	122	14,106	
6. Bottled Beverage Coolers—Complete	493	37,266	2	164	43	3,575	538	41,005	
7. Milk Cooling Cabinets (No High Sides)	30	2,454					30	2,454	
8. Air Conditioners—Self-Contained	38	10,257			311	73,086	349	83,343	
9. Air Conditioners—Floor Type (No High Sides)	85	42,324			12	5,525	97	47,849	
10. Air Conditioners—Ceiling (Cooling Only—No High Sides)	97	16,995			23	3,043	120	20,038	
11. Air Conditioners—Ceiling Type (Equipped for Heating—No High Sides)	24	13,729			3	1,590	27	15,319	
12. Air Conditioners—Residential Type (No High Sides—Boilers, or Furnaces)	17	4,657			14	7,000	31	11,657	
13. Condensing Units Less Than $\frac{1}{2}$ Hp.	914	48,446	13	938	276	17,991	1,203	67,375	
14. Condensing Units $\frac{1}{2}$ Hp.	984	70,145	13	1,168	159	13,770	1,156	85,083	
15. Condensing Units $\frac{1}{2}$ Hp.	674	67,513	26	3,027	161	18,187	861	88,727	
16. Condensing Units $\frac{3}{4}$ Hp.	497	69,212	9	1,419	52	7,476	558	78,107	
17. Condensing Units $\frac{1}{2}$ Hp.	348	56,130	10	1,825	73	12,228	431	70,183	
18. Condensing Units $\frac{1}{2}$ Hp.	189	36,863	5	1,254	37	7,341	231	45,458	
19. Condensing Units $\frac{1}{2}$ Hp.	80	18,712	1	302	38	9,564	119	28,578	
20. Condensing Units $\frac{1}{2}$ Hp.	66	21,032	5	1,419	21	5,302	92	27,753	
21. Condensing Units $\frac{1}{2}$ Hp.	39	19,030			6	2,781	45	21,811	
22. Condensing Units $\frac{1}{2}$ Hp.	23	16,473			1	676	24	17,149	
23. Condensing Units $\frac{1}{2}$ Hp.	23	17,473			9	6,957	32	24,430	
24. Condensing Units $\frac{1}{2}$ Hp.	39	32,762			10	8,285	49	41,047	
25. Condensing Units $\frac{1}{2}$ Hp.	13	16,413			6	7,583	19	23,996	
26. Condensing Units $\frac{1}{2}$ Hp.	14	18,946					14	18,946	
27. Condensing Units $\frac{1}{2}$ Hp.	5	7,180					5	7,180	
28. Condensing Units $\frac{1}{2}$ Hp.	17	38,832			1	1,600	18	40,432	
29. Condensing Units $\frac{1}{2}$ Hp.	4	8,419					4	8,419	
30. Total—Lines 13 to 29, Incl.	3,929	\$63,581	82	11,352	850	119,741	4,861	694,674	
31. Total—Lines 1, 2, 4, 6, 8, and 30...	5,469		99		1,376		6,944		
32. Commercial Evaporators (Not Reported Above)	2,578	75,928	131	4,669	444	17,051	3,153	97,648	
33. Air Conditioning Evaporators (Not Reported Above)	46	12,930			10	4,904	56	17,834	
34. Total Commercial & Air Conditioning		\$921,391		\$17,325		\$252,865		\$1,192,081	

CHIEF APPLICATION Engineer or Sales Manager. University graduate, married, 37 years old. 12 years experience in air conditioning, commercial refrigeration, and automatic heating with large manufacturers and distributors. Now employed but desire new connection. Prefer New York—Baltimore—Washington territory. Will be free to change January first. Box 998, Air Conditioning and Refrigeration News.

DIRECT FACTORY Representative. Do you need a reliable representative in the Chicago area? Am looking for a responsible manufacturer to represent who puts out a commodity of superior merit that justifies persistent sales effort. Commission basis desired. Box 1000, Air Conditioning and Refrigeration News.

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